PLO evacuation from

Monday August 23 1982





ENERAL

# Hopes of inding cientists ade

The British Antarctic Survey id: "The chances of finding nem are now extremely slim." They are John Coll, 23, a iesel mechanic from Glasgow, mbrose Morgan, 22, a radio perator from Petersfield, Hants, nd Kevin Ockleton 22, a physist from Keyingham, near Hull.

### Pretoria inquiry

retoria ordered an inquiry into imbabwe Prime Minister lobert Mugabe's claim that outh African soldiers had set p a base in his country.

Kenyan security tenya's President Daniel arap foi moved to reorganise the certain forces after the above ecurity forces after the aborive August 1 military coup.

### **Dublin protest**

Jublin protested to Britain bout shots fired from a Royal lavy launch at a yacht with ight children aboard that reused to stop in an inlet traddling the border with jister last week.

### **Viercenary claim**

The Defence Ministry rejected eports that U.S. mercenaries ought with Argentine troops in he Falklands, saying there may save been American-speaking

### Fires still blazing hree forest fires that ravaged.

7,000 acres near St Tropez, outhern France, since Saturday Sevchelles flights

### 3ritish holidaymakers stranded

n the Seychelies by the recent coup attempt are due home oday after the resumption of scheduled flights.

### Scillies air link The Trade Department gave

280,000 to the Scilly Isles counail to take over the airport and save the air link with Cornwall.

### Festival closed

Organisers asked Los Angeles police to close a festival at Watts, a black suburb where 35 died in rioting in 1965, follow-ing looting and fighting.

### Child 'protection'

Tory MP Geoffrey Dickens plans to introduce a Bill to protect children by banning organisations such as the Paedophile

### **Prom-otion**

Seaside resorts, hit by the recession and changing holiday patterns, are to sell themselves through travel agents next year.

Briefly. . . . Lord Shinwell, 97, was under

observation in a London hospital's coronary unit. The Voice, a weekly London newspaper for blacks, will go on sale at the Notting Hill

Carnival on August 26. Page 5 Vaccines against pasturella, the main killer disease of sheep. were launched by Hoechst. British Medical Association munications concern, said it

meets in Worcester on September 9-11 to celebrate its 150th anniversary. India's Prime Minister Indira Page 14

Candhi starts a five-day tour of . FORKER, Dutch aerospace Mauritius and Mozambique

King Sobbuza of Swaziland died

### CONTENTS\_

UK energy: the factions Management: the recesprepare for battle ..... 11 sion's effect on employee Tourism: why we don't like consultation .......... 8 to be beside the seaside 5 U.S. economy: a taxing victory for Reagan ... Editorial comment: Middle East—a chance for U.S. diplomacy; dumb insolence Eurobonds: prices and

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on the shop floor ..... 10 quotations ....................... 14

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BUSINESS

# Schmidt warns of trade war

or three British scientists misng in the Antarctic had to be
uncelled yesterday for the
could lead to a trade war, recould day running because of
ad weather.

WEST GENUARY Charles to
that U.S.-Europe trade disputes
that U.S.-Europe trade disputes
that U.S.-Europe trade disputes
the total conditions of the 1930s. Back Page

● IMF advances outstanding rose by a third and its opega-aional income doubled in the year to April 30. Page 2

 BANK OF FRANCE sold
 D-marks on Friday as part of
 its measures to prop up the
 weakening franc. The French
 currency remained comfortably. placed around the middle of the European Monetary System, but came under renewed pressure from Thursday onwards on rumours of possible withdrawal from the system. In forward trading, the franc weakened sharply and Eurofranc interest

ECU DIVERGENCE

a week for extra borrowing required because some tax has

not been collected. Back Page

• NATIONAL SAVINGS is

falling well behind its target of

a £3bn contribution to Treasury

funding in 1982/83. Page 4

• LOW STOCK LEVELS could

endanger a UK economic re-

covery by creating opportuni-ties for importers, said the

Fraser of Allander Institute,

• BRITISH STEEL is to lay

off 5,500 at its Welsh timplate mills, and Dunlop is laying off

3,000 for a week at its Port Dunlop tyre factory near

• HEALTH UNION Cohse will

meet this week to discuss recal-

ling its annual conference to

endorse an escalation of the

@ IBM's Greenock, Renfrew-

shire, plant might be chosen to

build the company's new Per-

• BELL CANADA. telecom-

would proceed with its re-organisation plans in spite of a

company, net profits edged for-

ward to Fl 6m (£1.27m) from

Fl 5.84m in the first half.

call for a public inquiry.

Birmingham. Back Page

pay dispute. Page 5

sonal Computer. Page 4

rifles, Palestinian flags, and pictures of Mr Yasser Arafat, the PLO leader, and chanting sharply, and the Belgian National Bank took advantage of the relative stability of the revolution until victory." Of these, 265 were trans-ported by air to Jordan, where Belgian franc to cut its discount they were met personally by King Hussein. The remainder, members of the Iraqi-backed Arab Liberation Front, flew to **EMS AUG. 20, 1982** 

bour. The vessels stopped the

departure of a ship carrying more than 1,000 PLO men to

The Israelis said the PLO had

loaded 18 jeeps onto the ship, contrary to the terms of the

evacuation plan drawn up by Mr Philip Habib, the U.S.

special envoy. This specifies that the PLO can take only personal weapons such as rifles and sub-

machine guns.
Israel Radio reported that the

Before the hold-up about 400

guerrillas, the first batch of evacuees, had arrived by boat

at Larnaca, in Cyprus, waving

BY PATRICK COCKBURN IN IERUSALEM AND REGINALD DALE IN WASHINGTON THE EVACUATION of mem- by emotional scenes and the Syrian control. An Israeli bers of the Palestine Liberation deafening sound of continuous soldier wounded in a clash with Organisation from Beirut firing in the air to mark the resumed last night after several occasion—a traditional way of tense hours in which Israeli marking grief or celebration.

The U.S. reacted calmly to the

Beirut resumes after

blockade 'hitch'

lawyers' dispute. Mr Weinberger said that the Israelis had "no basic right" under the evacuation agreement to block the ship's departure. The port area was meant to be in the hands of the French peace-keeping force, he said.
The problem was that Jeeps

ere not specifically mentioned blockade had been lifted following assurances from the U.S. that the jeeps would be unloaded before the guerrillas reached their final destination, in the evacuation agreement, Mr Weinberger said: The PLO interpreted this to mean that they could take them, the Israelis that they could not. In spite of last night's resump-

tion of the evacuation, the whole exercise remains fraught with difficulties and mistrust. Israel suffered casualties in guerrilla ambushes over the weekend. In addition, there were signs yesterday of tension rising be-tween Israel and Syria.

Syrian troops stationed in the Bekaa Valley as part of the Arab Deterrent Force.

The worrying aspect of the ceasefire violations over the weekend is that they were not The evacuation was marked confined only to areas under

soldier wounded in a clash with the PLO on Saturday died occasion-a traditional way of yesterday and three members of a PLO squad were killed in a separate incident east of

hold-up in the evacuation. In Washington, Mr Caspar Weinberger, the U.S. Defence Secretary, described the problem as ambush north of the port of a little hitch," a sort of Tyre, just over 40 miles south Tyre, just over 40 miles south of Beirut late yesterday after-

Israel is extremely worried by guerrilla attacks by units of the PLO operating from behind Syrian lines, an Israeli spokesman said yesterday. Further attacks are likely to lead 10 heavy retaliation by the Israelis

against the Syrians.

The inability of the Lebanese army to identify all the PLO members leaving Beirut seems to be causing the government in Jerusalem less concern, although it has protected at this though it has protested at this violation of the terms of the evacuation plan to Mr Habib.

The Israelis say the Syrians are heavily reinforcing their troops in the Bekaa where about 7.000 PLO troops are also stationed.

Meanwhile, Cabinet said yesterday that it will soon produce a scheme for general Middle East peace, but involve." will not examine anything which deviates from the Camp David accords.

Details, Page 2

# IMF expansion warning after 'troublesome' year

BY REGINALD DALE, U.S. EDITOR IN WASHINGTON

WORLD ECONOMIC developments over the past year have industrial countries include direction were in progress durremained troublesome in spite of signs of progress in the fight against inflation, the International Monetary Fund says in its annual report, published today.

The chart shows the two constraints on European Monetary System exchange rates. The upper grid based on the weekest currency in the system defines the cross rates from which no currency (except the lina) may move more than 2½ per cent. The lower chart gives each currency's divergence from the "central rate" against the European Currency Unix (ECU) itself a basket of European currencies. Among the many major problems, the fund cites low or negative growth rates, inflation that is still too high in most countries, increasing unemployment, the extremely slow growth of world trade and volatile interest and exchange rates in the industrial countries. CIVIL SERVANTS' strike The fund warns sternly of the last year is still costing £4m

dangers of protectionism and of governments shifting too soon to expansionary fiscal monetary policies. It is worried by the way increasing social and political strains stemming from unemployment are creating pressure for a relaxation of restrictive, ant financial policies. anti - inflationary It adds that the threat of

protectionism is also increasing as a result of weak demand and high unemployment in the industrial countries. The prob-lem requires "the utmost vigilance and prudence in government actions" if serious consequences for the growth of world trade are to be averted. Weak demand in the industrial countries has also had a negative impact on prices of primary commodities and hence on the export earnings of many developing countries. Impairment of the international purchasing power of these countries, in turn, has contri"various rigidities and structing the first half of 1982, tural imbalances that have David Tonge writes: become embedded in the econovage bargaining and price setting, government subsidies or protection of ailing industries. the imposition of governmental regulatory burdens and in struc-tural unemployment.

Rigidity in government spending and taxation has resulted in large budget deficits. These have had adverse direct effects on prices and costs, hindered the effectiveness of monetary restraint and forced interest rates

The fund calls for comprehensive policies to control the growth of nominal demand and eliminate these rigidities. backed up in some cases by flexible or informal incomes policies.

The industrial countries are stalled in a long period of slow growth in output and demand, the report says. Their average real increase in gross national product was only about 1.25 per cent a year in 1980 and 1981, compared with 4 per cent be-tween 1977 and 1979—and 1982 is shaping up as another weak

The current account surplus the oil exporting countries fell sharply from \$116bn (£68bn) in 1980 to \$69bn last year, while the industrial countries' deficit was reduced by \$40bn to about \$4bn, excluding huted further to the slowdown official transfers. The fund says that further

Important problems in the substantial shifts in the same

year was a good one for the mic system," the fund says. IMF's attempts to build up the Examples are to be found in credibility of its paper money, the Special Drawing Right. By the end of 1981 about SDR 5bn (£4.6bn) was on deposit in SDR denominated accounts, SDR cer tificates of deposit were being traded with some SDR 700m issued, and SDR 2bn of SDRdenominated loans were out standing, according to the IMF's

> Development of the asset had been helped by the IMF's end of 1980 move restricting SDR's curency basket to the D-mark, French franc, Japanese yen, pound sterling and U.S

This year the continuing strength of the dollar has caused investors to lose considerable interest in the SDR. a point not covered by the IMF. produce calculations designed to show how over the long term the against currency fluctuations. It calculates that between June 1973, before the first oil shock, and March this year a holding in SDRs-had they would have appreciated

by exactly the same amount as a holding in short-term U.S. treasury bonds. By contrast, investors in sterling and francs would have done better if they had chosen SDRs, while those of Japanese yen and D-marks would have done slightly worse Lombard, Page 11

# Civil Service strike still hurting

vigorous enough in seeking the

between the Inland Revenue and

the Treasury about the need for

extra investigators to catch

suspected evasion. But the Trea-

The Revenue claims that it

Government will not

people who are evading tax.

lost revenues.

BY MAX WILKINSON, ECONOMICS CORRESPONDENT

week for the extra loans required to make up for un- rate. collected taxes.

sum might have to be written off altogether. According to the latest

Treasury estimate, the extra interest payments resulting from the five-month dispute reached £550m by the end of June—the same as the cost of the Falklands conflict in the current year. At the time of the last Budget needs more than the 1,870 offi-

it was estimated that between cirls investigating cases of £1.25bn and £1.5bn of income tax, value-added tax and national sury has told the Revenue that insurance contributions out the standing from the time of the authorise more collectors while dispute had still not been col-

Although the Inland Revenue servants. and the Customs and Excise Departments have said they expect eventually to collect most of the backlog, a substantial proportion remains unpaid. The Treasury estimates that,

in the three months to June.

hig efforts are being made to reduce the number of civil The Revenue has been told that it must find any extra investigators from among its present staff. But this has been made more difficult because civil economy. It cannot be argued

THE COST of the civil servants' because of the non-payment of There is a similar problem at strikes in 1981, which ended a these taxes cost £50m in interest the Customs and Excise Departyear ago, is still more than £4m payments. The cost is thought to ment, which collects value-added be continuing at about the same tax.

Both departments say that This month, the all-party extra investigators would bring There are now fears in Public Accounts Committee of in more than the cost of their Whitehall that a substantial MPs criticised the tax-collecting salaries by rooting out tax sum might have to be written departments for failing to be evasion. Each Inland Revenue investigator for example, produced last year an average of However, the issue is compli- £92,000 in revenue which would otherwise have been cated by a fierce argument not

The departments have gained the support of MPs on the Public Accounts Committee for their case for more staff, but the Government is not likely to give way. In addition to the overall constraint on Civil Service numbers, there is the general Conservative anxiety about employing too many " tax snoopers.'

Moreover, argues that, although it is desirable to stamp out tax evasion, the extra revenue yielded through special investigators does not represent the creation of new wealth in the servants are still trying to that extra inspectors would pay identify taxes not paid as a for themselves in an economic result of their strikes last year. sense, the Treasury believes.

# Vatican to resist claims on its funds

By Rupert Cornwell in Rome

THE VATICAN has indicated that it will resist demands by the Italian authorities that it should cover fully more than \$1.2bn (£700m) of loans issued by the collapsed Banco Ambrosiano group to Panama-based companies, on the strength of letters of patronage issued by the istitute per le Opere di Religione (10R), the bank of

the Holy See.
This first public pointer to the Vatican's attitude to the Ambrosiano scandal comes from Cardinal Agostino Casaroll, the Vatican's Secre-tary of State, in an interview

in the forthcoming issue of the magazine L'Espresso. The controversy over rela-tions between the now liquidated Banco Ambrosiano and the IOR hinges on the nature of the guarantees represented by a letter of patronage. Failure to recover the Panamanian toans lay behind Ambrosiano's collapse.

According to experts, said Cardinal Casaroll, "the tone of these letters, which are part of standard banking practice, is such as not neces-sarily to imply a full obligation. I think there are limits to the commitment many people think the letters

The whole question is being examined by the team of three appointed by the cardinal in mid-July. Their report, he says, will be ready before the autumn." Cardinal Casaroli

claimed that the total sum

involved was less than \$1.2bn.
"From what has emerged so far, this figure includes earlier operations which had nothing to do with the IOR," he said. Vatican officials bave stoutly maintained in recent days that if the Holy See bas made mistakes in the affair these have heen due to oversight and inexperience, and are not the

This seems to amount to a rebuke for Archbishop Paul for the past 11 years. Relations between the secretary of state and the Chicago-born archhishop are said to be not

good. Last month the Vatican rejected ΘД procedural grounds judicial communications sent by Milan magistrates probing the Ambrocase to Archbishop siano Marcinkus and two other top-IOR executives.

The hearing to examine the Bank of Italy's petition to have Banco Ambrosiano SpA formally declared bankrupt resumes in Milan today.

# French 'threat' to requisition work on pipeline

BY DAVID WHITE IN PARIS

THE FRENCH Government is understood to have threatened to requisition the services of Dresser-France, if it fails to fulfil its share of a contract to supply equipment for the gas pipeline to be built between Siberia and western Europe.

The heavy engineering com-pany, a subsidiary of Dresser Industries of the U.S., is to send its first compressor to the Soviet Union this week.

What was alleged to be a con-fidential telegram, containing the threat, was published in Paris newspapers at the weekend.

The French Foreign Ministry would neither confirm nor deny the existence of the cable, alleged to have been sent to France's main embassies, but said that such measures would not be out of keeping with the government's position.

Dresser is believed to have three compressors ready for shipment to the Soviet Union under a deal headed by the Creusot-Loire group of France and Mannesmann of West Germany. They were completed recently after an interruption in June, when President Ronald Reagan of the U.S. announced measures intended to reinforce Washington's embargo on work in the U.S. for the pipeline.

He extended the ban on par-ticipation by the U.S. in the project to overseas subsidiaries of U.S. companies. He also tried to prohibit the export to the Soviet Union of pipeline equip-ment made abroad under U.S. Communist-led CGT

trade union confederation in France has called for a protest demonstration at Dresser's Le Havre factory tomorrow. The CGT claims that jobs would be lost if the compressor contract were shelved or cancelled.

French companies, even if foreign-controlled, are considered by the Government here to be under a formal obligation to conform to their obligation to complete the contracts on the pipeline.

Defying the U.S. embargo, circumvent the U.S. embargo and this disappointed the the office of M Pierre Mauroy, the Prime Minister, stated specifically last month that deliveries due in 1982 must be

made according to schedule.

The alleged telegram says that four of the French companies participating in programme received notices from the Industry Minister this month, to warn that measures would be taken if necessary to ensure that the contract was carried out. They might go as far as requisition. A "decision in principle"

had already been made to employ such a measure against Dresser-France, the telegram's



M Pierre Mauroy: Defying the U.S. embargo.

text said, if it were to continue to respect the orders of its U.S. management and refuse to execute the contract.

Another U.S. subsidiary, Rockwell-Valves, part of the Rockwell group, was also among the companies said to have been notified. The others were Alsthom-Atlantique, which has a FFr 400m (£33.53m) contract for 40 spare kits of rotor blades, dated before the first U.S. embargo, and Creusot-Loire, which, apart from compressor units, also has a contract for

refrigeration stations. Alsthom has a licence agreement with General Electric of the U.S., which was initially to have supplied 125 rotor-blade kits for the project. Creusot-Loire, meanwhile, has

a licence link with Cooper Industries of the U.S. Total French orders for the

pipeline-including other com-panies, such as Thomson-CSF and Vallouree-are worth about \$700m (£402.3m).

Britain invoked its Protection

Reagan Administration. The prohibition announced this month by Lord Cockfield, the British Trade Secretary, was designed to prevent com-

pliance with the embargo by four British companies, which the are contracted to supply £134m worth of goods for the pipe-The EEC has also argued that Washington is infringing inter-national law through its

embargo on the use of licensed U.S. technology by European companies making components for the pipeline.
Schmidt warning on trade,

June 1982

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BY ANATOLE KALETSKY IN WASHINGTON

By Doreen Gillespie in Lima

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PERU'S civilian Government has declared un indefinite state of emergency in the provinces of Lima and Callao to give the police a free hand to wipe out (errorist activity.

The state of emergency allows police to search and arrest without warrant, bans public meetings and restricts travel within the country. Although Peru's constitution limits a state of emergency to 60 days, Dr Manuel Ulloa, the Prime Minister, said the measure would be renewed as many times as necessary.

The emergency follows the dynamiting of five electricity pylous in and around Lima which plunged half Peru's Dopulation into darkness last week. The authorities say all five towers were dynamited within a five minute period. Incendiary bombs and sticks of dynamite were tossed at 2 number of buildings at the same time and at least five shops were damaged by fire.

Damage is estimated at around £700,000 including losses caused by closure of factories and businesses. There were no reports of deaths or serious injuries apart from two people killed in traffic accidents during the

The attacks are blamed on a Maoist group known as Sendero Luminoso, the Shining Path, which has heen opposing the Govern-ment headed by President Fernando Belaunde since it took office two years ago.

Action was at first limited to sahotage of pylons and bridges mostly in the southern Sierra region of Ayacucho, but has since expanded to include guerrilla warfare.

At least 10 people, including five policemen, have been killed in and around Ayacucho in the past six weeks. President Belaunde is heing pressed to call out the armed forces but claims that the terrorists can be dealt with by the police. The President has said that they have received financial help and advice from abroad but has not shown evidence.

# U.S. sees that in the Mideast dogs do not sleep PERHAPS this is the moment. when people can turn their eyes

from the problems of war to the problems of peace. . . . People must see now that the alternative to a relatively peaceful situation is not a pleasant thing to contemplate." When Mr George Shultz, the

U.S. Secretary of State, made this characteristic understatement last Friday, the "people" he referred to were not only citizens of Beirnt, Palestinian refugees or Israeli soldiers.

The lessons which the American people draw from the Lebanon crisis may firm out to he as vital to the Middle East's future as the new realism which the Palestine Liberation Organisation's military defeat may be inducing in the Arab

More than ever, the U.S. is now established—in no small measure through Mr Philip Habib's personal efforts—as the dominant power in the region and as the only mediator capable of providing a common language for the Arabs and At the same time Americans,

from the President downwards, have recently been reconsidering most of their assumptions about the Middle East and Israel. They have been debating their hitherto unquestioning support for Israel, wondering about the vulnerability of a tiny Israel confronted by the hostile idea that "let sleeping dogs lie"



Mr Shultz . . . 'great strains'

Arab hordes, thinking for the first time about the fate of the Palestinians and talking about the historic hardships which they have faced.

On the whole-and again from the President downwards Americans have not to Israel as a nation, though they have learned to distinguish What has changed abruptly.

however, is the complacency response to that followed the peace treaty between Israel and Egypt: the The same

was an acceptable policy for the Middle East. The Lebanon crisis has shown that such a policy is not only unacceptable-it is impossible. In the Middle East dags do not sleep. They may crouch silently, but they are always preparing to pounce,

The U.S. Government has made its continuing sympathy for Israel, despite what Mr Shultz called the "great strains" of the past few weeks, clear enough through its public statements and actions. President Reagan's publicly-

expressed "outrage" at the Begin Government's military actions in the last days of the seige of Beirut, was a reminder of how hard the U.S. had to be pushed before it was willing openly to condemn its friends. The public's basic sympathies

also seem to be unchanged, to judge from recent opinion polis. In the latest, published on Friday in the Washington Post, the answers to the question: "Do you sympathise more with Israel or with the Arabs?" split swerved from their basic loyalty 52-18 in Israel's favour. It may seem astonishing to Europe, but this attitude has been essenbetween the State of Israel and tially unchanged throughout the the Government of Mr Menahem war in Lebanon. In March, three months before Israel's invasion. the split in favour of Israel in response to the same question

the American public's loathing crises.

## Marines under strict orders

shore.

over the use of U.S. troops abroad is such that the 800 Marines due to land in Beirut later this week will be under the strictest orders not to get into trouble, Reginald Dale writes from Washington.

The Marines, from the 32nd amphibious unit, have been strictly instructed not to engage in combat. although they may "exercise the right of self-defence." If there is any armed violation of the evacuation agreement, they will withdraw immediately.

The Pentagon says that an isolated shot at the Marines "by a simple, deranged person " would not lead to a with-

of the PLO-the President himself still habitually refers to if anything, grown.

Department official.

The President now realises that the region will be fraught with dangers even after the as 55-18. PLO's evacuation. After each The same polls suggest that crisis there will be further As long as there is no

hoohy traps. framework for stable relationships between Israel and other them as "the terrorists"—has, Arab countries, like the one if anything, grown.

which President Jimmy Carter Nevertheless, there has been helped to fashion between Israel an "nistoric change in percepand Egypt at Camp David, the tions" about the Middle East, Middle East will remain a runin the words of one State ning sore. And the Reagan Administration will now be held responsible by domestic as well as international opinion for

drawal, but anything much

calibre pistols. They may be

guns and mortars, but they

will leave their artillery and

tanks on support ships off

They may use their

weapons individually in self-

detence if fired on by any

other forces, including the

Israelis. They are not meant

to have direct contact with Palestinian forces, the

Pentagon says, and will not work on defusing mines and

more serious would.

Although Mr Shultz admits freely that his policies on the Middle East have yet to be

doing something to heal it

"properly constructed." he has made it clear that he intends to find a new strategic plan, based on an expansion of the Camp David peace treaty between Israel and Egypt.

A second aspect of the change Enlisted men will come ashore with M-16 rifles, officers will carry A5 callibre in U.S. preceptions about the Middle East will make Mr Shultz's task much easier. The pistols, helicopter pilots, .38 words " legitimate aspirations of the Palestinian people," which supplied later with machine both Mr Shultz and President Reagan have been repeating almost daily in the closing stages of the Beirut crisis, are now decoly imbedded in American public consciousness. Some form of permanent home for the Palestinian people is now recognised almost universally in the U.S. as the most important precondition for stability in the Middle East.

This does ont imply that the U.S. will suddenly abandon its antagonism to the PLO in its present form or even that it will put real pressure on Israel to make concessions to the Arabs, unless the Arabs make clear that they will offer Israel

It does mean, however, that the American perception of the basic problems of the Middle East is, for the first time, aligned with the vision in the Arab world. Americans may still see Israel as their closest friend in the Middle East, but they now also see its policies as

### France and Egypt try to revive UN initiative

BY DAVID WHITE IN PARIS

TALKS are planned here today between M Claude Cheysson, the French Exter-nal Affairs Minister, and his Egyptlan counterpart, M Boutros Ghali, on a possible revival of joint initiatives in the United Nations aimed at forming the basis of a politi-cal settlement in the Middle The Egyptian Foreign Mini-

ster arrived in Paris from Washington yesterday. Although a meeting has not been officially announced, M Cheysson is known to be anxious to seize the opportunity of renewing joint efforts as soon as possible following the evacuation of Palestinian forces from

A draft resolution submit-ed by France and Egypt late last months put on the

back-burner because of both the deterioration in the fighting in Lebanon and evident U.S. reservations. The Franco-Egyptian intia-

tive was based on mutual and simultaneous recognition of all the parties involved. It affirmed both Israel's right to exist within secure frontiers and the Palestinians' "national" right to selfdetermination. The Egyptians were understood to have won backing from several Arab countries for the draft reso-

President Mitterrand made clear in his television interview last week that France was sticking to its previous policy on the PLO, and would

# Moi moves to strengthen security forces

By Quentin Feel, Africa Editor PRESIDENT Daniel 2120 Moi of Kenya announced two drastic steps at the weekend to reorganise the country's security forces in the wake of the abor-tive August 1 military coup; the disbanding of the Air Force, which was at the heart of the rebellion, and the sacking of the police chief, Commissioner Ben Gethi.

The announcement, on Voice of Kenya radio, said the 2.100man air force would be reorganised under the command Major-General Mahamoud Mohamed, hitherto the deputy Army Commander, and the man credited with the crushing of the coup attempt.

The radio said that Commissioner Gethi had been "retired in the public interest" with in the public interest with immediate effect, and replaced by the head of presidential security. Deputy Commissioner Bernard N'jiinu. Mr Gethi was also replaced as head of the paramilitary general service unit, which helped to put down the coun attenut. the coup attempt

The sweeping action in disbanding the Air Force, which is one of the best trained and equipped in Africa, with 29 combat aircraft, including 10 U.S.-built FS jet fighters, was effectively forced on President Moi, because fewer than 500

men have escaped detention.

The sacking of Mr Gethi is much harder to explain, for he has always been regarded as a close ally of Mr Charles Njonjo. the former Attorney-General, now Minister of Constitutional Affairs, who is arguably the most powerful man in the Kenyan Government after the President.

There had not been any public questioning of the loyalty of the police during the coup attempt, which was crushed in seven hours, although it is now officially said to have cost 159 lives (unofficial estimates are much higher) and caused

damage valued at more than \$100m (£58m). The new air force com-mander, General Mohamed, is from the northern Somah minority group.

Reuter adds from Harare:
The Zimbabwe Government yes-

terday showed journalists the bodies of three white men who it says are South African soldiers killed in a clash with the Zimbabwe army last week. Mr Robert Mugabe, the Prime Minister, said the men were part of a group that had set up a base inside the country.

# Emotional departure for PLO

BY STEWART DALBY AND NORA BOUSTANY IN BEIRUT

EVACUATION fighters Liberation Organisation (PLO) at first moved ahead slowly yesterday. Between 500 and 1,000 troops, mainly from Fatah. the mainstream guerrilla organisation headed by Mr Yasser Arafat, the overall PLO leader, assembled in a sports stadium in West Beirut and were driven down to the largely-destroyed port area of

the capital. There a corps of about 350 French paratroopers, the van-guard of the projected 1,600 to 2,000 multinational force, and the Lebanese army checked them on to a Greek freighter which was to take them to Larnaca in Cyprus and then on to Tunis, or direct to Tunis.

The first departures of some 400 pro-Iraqi Arab Liberation Front fighters on Saturday, look place against a background of

of the Palestine trucks, to the accompaniment of continue leaving by hoat either on Organisation (PLO) revolutionary songs, wives, girl from Beirut itself or Jounieh. friends and children cried, in the Christian enclave to the shouted, screamed, and spat, north, while others will go by cursing Arab regimes.

One little blonde girl, who burst into tears, asked why she was crying, said: "Now I will have to wait to go to Palestine. I hope Yasser Arafat lives long

Some 12,000 Palestinian fighters are due to be evacuated over the next two weeks. This comprises 7,500 PLO fighters and leaders, including Fatah; Saiga, the pro-Syrian faction; the Arab Liberation Front; the pro-Iraqi equivalent: and the various PLO brigades from Arab There are also between 1.500

and 2,500 Syrian army regulars who were cut off in West Beirut in the early days of the Israeli siege of the area in June.

of dark green Lebanese army will leave each day. Some will north, while others will go by road to Damascus. Ultimately, countries: North and South Yemen, Sudan. Syria. Jordan, Iraq, Tunisia and Algeria. But the fragility of the opera-

tion was shown up yesterday when Israel halted the evacuation after the Palestinians reportedly tried to leave with military vehicles. They were allowed to take only their small arms with them. This includes weapons up to their Russian-made AR-47 automatic rifles.

from the shattered city. Beirut aimlessly into the sea. is hardly quiet. All day yester-neither the Israelis not the day, there was a cacophony of French paratroopers seemed arms fire as PLO guerrillas fired bothered by these gestures. their guns, and occasionally let off rockets and mortars into the elections for a new Lebanese reat emotion.

If all goes according to plan, off rockets and mortars into the elections for a new Lebanese
As the fighters assembled on between 500 and 1.000 fighters, air for no apparent reason president may take place today.



except to protest at the occasion. dong the port area and the sea front, once one of the most This has meant that although elegant esplanades in the world, the tension has tangibly drained men and boys fired their guns

Ratio scale

recognise it only if it adopted a negotiating position based on recognition of Israel.

### IMF ANNUAL REPORT

# Industrial economies make progress against inflation Exported by Primary Producing Countries Exported by Primary Producing Countries

A WORLD economy dominated tax and benefit systems, may be by the industrial countries' con- resulting in an underlying uptinued fight against inflation, ward trend in unemployment, stagnant output and resulting Even after the ending of the many less countries described in the International Monetary Fund's annual report\*

The fund says there is fiscal evidence that considerable pro- their own, he effective, gress has been made in reducing Inflation in the industrial countries last year and in the first half of this year. It believes, however, that the

recent deceleration of consumer price rises has stemmed in part from transitory influences, gincluding the decline in oil prices and the weakness of basic commodity prices as a result of the worldwide fall in

The report says: "Increases in basic costs (mainly wages) have not come down nearly so much during the past year as final product prices, and continued progress in reducing them will require both maintenance of restraint in financial policies and public conviction that such 'policies will not be reversed."

In spite of exceptionally high and rising unemployment in most countries, the fund says national authorities have repeatedly expressed the conviction that further progress in reducing and controlling inflation is the prerequisite for any lasting improvement in employ-

😕 It olso warns that the structural rigidities, icluding labour market restrictions and

present recession, the world might not return to previous levels of employment without a fundamental effort to reduce these rigidities, Reflationary policies would not, on

Moreover, the Fund says that in most countries the fiscal stimulus to the economy has not been reduced much since actual government deficits have been This emitted from a fall-off in revenues while disbursements for social security other programmes have tended to stay constant, or to

The report also discusses different aspects of the world economy and its difficulties in

Inflation The inflation rate in the industrialised countries, as measured by the change in prices from one quarter to the next.

fell to about 5 per cent at an annualised rate in the first three months of 1982. This is well below the prevailing rate in 1978, just before the effect of the second oil price increase.

After the 1979 oil shock, the average annual inflation rate in the major countries reached a peak of 14 per cent, but decelerated after oil prices tapered off to between 9 and 10 per cent in the latter part of 1980.

In most of 1981, however, deceleration of the inflation

Warning on interest rates there is reason to expect that

Max Wilkinson writes.

If the authorities stick to a target for the expansion of money supply, changes in tinancial practices and in

However, the IMF believes this should not undermine the determination to stick to

rate was limited and irregular. The further slowing down of inflation at the beginning of this year reflected the relapse of the U.S. economy into recession, the decline in oil prices, the marked weakening of commodity prices and an easing of wage demands in several coun-

 MONEY SUPPLY A weighted average of indices of narrowly defined money in the seven major countries shows that annual rates of expansion have been reduced from

supply grew at the rate of 11 to rise as a result of the faster • UNEMPLOYMENT 13 per cent a year during 1976- deceleration of price inflation By mid-1982 unemp

BY DAVID TONGE

The Fund says that the stag-

the anti-inflation reflected future aberrations of interest rates from desired levels will limited and temporary; with the deflationary effects of without it progress towards greater price stability and the oil price rises in 1979-80. ultimate achievement of sus-

These negative influences were softened to some extent by the increased demand from the ail-exporting countries. This helped real exports from the industrialised countries to rise at rates of 8 per cent in 1980 and 41 per cent in 1981.

• Investment and stocks. Weak consumer spending. the erosion of profitability and the higher cost of capital have all contributed to depress rates of capital spending.

In real terms, gross fixed investment in the industrial countries rose by 4 to 5 per cent a year in 1978 and 1979, but it declined by 13 per cent in 1980 and by another ? per cent last year. Nevertheless, the Fund says the weakening of capital investment was less severe than 1979; and 1982 is shaping up after the first oil shock in 1973.

Depressed profits, the relatively high cost of labour and rigidities in labour markets have, nevertheless, shifted the wards labour-saving rather than to capacity-expanding investments.

By mid-1982 unemployment ton DC 20431 U.S.

compared with the rise in had risen to about 8 per cent of the combined labour force of rates of unemployment have nation of economic growth has the industrialised countries, compred with 5 per cent in 1979. policies of the major powers as un all the major countries the well as the "corrosive effect" approached, or substantially exof inflation itself on real ceeded, those in the 1975 recesincomes and expenditures along sion. In the industrial countries this increase in unemployment occurred despite a slowing in the growth of the labour force.

The fund says that although the current increase in unemployment is cyclical, there, are severe implications. "First, there is an absence

of any prospect of an early reversal, given the outlook for only modest recovery from the present recession. "Second, the recent cyclical increase has been superimposed

on a secular increase of more fundamental character." Even before 1980, unemploymenthad been rising steadily for about 12 years (except in Japan) from about 3 per cent of the labour force in 1966 to 4 per cent in 1973 and 6 per cent in 1979. Recently the effects have been particularly severe for imigrants, minority groups and young workers. Average youth unemployment in Europe and North America reached 18 per

\*International Monetary Fund Annual Report of the Executive Board for the financial year ended April 30, 1982. Washing-

cent early this year.

### -500 BY MAJOR COMMODITY GROUPS 400 300 300 200 200 100 In USS terms: 1975 - 100 In USS terms: 1975-100 200 ALL COMMODITIES 150 150 100

### THE FUND says the main feature of the global pattern of payments balances in 1981 was a partial reversal of the shifts which occurred in the preceding two years. The current account sur-

1977

1978

1979

1980

pluses of the oil exporting countries declined steeply, while the current account deficits of the industrial couptries were reduced. There was a continuation of this trend in 1982. The recovery of the balan-

ces of the industrialised countries from deep deficit after oil price rises, reflected their efforts to economise on the use of oil, the subsequent weakening of the oil price and the general recession of output. The Fund believes that the combined deficit for the group as a whole is likely to substantially reduced again this year.

The general weakness of demand contributed to the developing oil exporting

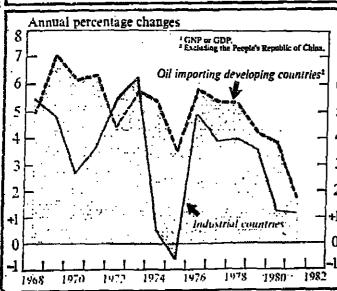
countries. However. domestic policies of the major oil exporters have tended to he less expansionary than after the oil price increase of

Although imports of these countries rose in volume by 20 per cent in 1981 compared with 15 per cent in 1980, a moderate increase of perhaps 5 per cent is expected this year. The role of import expansion in curtailing the current account surpluses of oil exporters has been less than it was after 1973-74. The major factor in recent years has been the net deficit on services and transfers. The developing countries

without oil have been in a much worse position. Their exports of commodities have been hadly hit by weak demand and falling prices

FINANCIAL TIMES, published dark except Sundays and holideva. U.S. subscription rates \$365.00 par anoum Second Class nortage gard as Nee York, N.Y., and at adortional mailing

### Selected Groups of Countries: Growth of Real Output 1968-811



# THE FUND warns that there

need for credible policies to reduce money growth with the need for stable interest rates.

demand for money can lead to wide fluctuations of interest

sound monetary policies.

about 61 per cent in both 1980

apparently indicate that the

SDR 11.3bn, including an

India, the largest in the fund's

ties and the high level of interest rates helped the IMF's

operational income to double to

SDR 1.79bn. Operational ex-

penses rose by 120 per cent to

SDR 1.54bn. The fund's net

income increased from SDR 80m

to SDR 92m, all of which was

added to reserves, bringing these to a healthy SDR 935m.

This spate of lending causes

This increased level of activi-

5bn arrangement with

from being weakened. 1978 and by about 10 per cent a year in the past three years. Output.

tainable economic growth at a

satisfactory pace would be jeoparised," the Fund says.

large hudget delicits should

he curtailed as a means of

reducing interest rates and

preventing the private sector

The IMF underlines that

The fund says: "At mid-1982 the economies of the industrial countries were stalled in a pro-longed period of slow growth. Aggregate growth of real GNP in these countries averaged only about 12 per cent a year in 1980 and 1981 compared with 4 per cent from 1977 through as another year of weak expansion on an annual basis."

It believes, however, there 10 per cent in the period 1976-78 may now be an improvement to 74 per cent in 1979 and to in real disposable incomes and focus of capital spending to-The broadly defined money real wages have now begun to

therefore of consumer demand. After a decline during 1980,

adequate, the demands on the

(SDR 15.6bn), and for the un-

that date amounted to SDR 6.Shn from the Saudi

Arabian Monetary Agency and

Since then, Mexico

Fund's income thrives on world adversity

oil-developing countries, rose to compared with SDR 19.2bn of liabilities to members under their reserve tranche holdings years, its report says. Last year for the first time its drawn balances of loans agreed Its outstanding borrowings at

> SDR 1.2bn from the Bank of Internatinoal Settlements and associated central banks. remaining distant. Almost all the increased approached the IMF for almost advances made by the IMF last

Indeed, liquidity is now far few or no conditions attached. better than many expected in The fund's report refers to the 1980 and 1981. However, with problems faced by an increasing in meeting these conditions. The fund has long been ments its ordinary resources by criticised by developing coun-

tries for its "conditionality."

by one-third to SDR 14.9bn. 1982, its usable ordinary re-

Fresh commitments, all to non-sources amounted to SDR 22.9bn

(SDR 3.6bn).

fund thrives when the world fund's resources are likely to faces adversity. Total advances remain high over the next few outstanding from the IMF rose years." At the end of April, the next increase in quotas not expected until 1984-85, the fund may need to continue to suppleborrowing in the next few

> commitments involved a higher proportion of borrowed resources than of those ordinarily available. Nonetheless, officials apparently see the prospect of borrowing from private, as against official markets as

SDR 4bn, but this comes after year required to meet condiseveral months during which tions. In the previous three a whole."

THE IMF's RESULTS for the the IMF to warn that, though the fund's level of fresh com-year ended April 30, 1982, its liquidity "is at present mitments was dramatically cut. of payments assistance had had number of developing countries

> but its report writes of the advantages obtained by countries which have adopted IMF programmes: " Developing countries with Fund-supported programme generally achieve a sig nificant improvement in their balance of payments, both in absolute terms and in comparison with all non-oil developing countries. Second, the rate of inflation grows less in countries with Fund programmes than in non-oil developing countries as

# Another U.S.-Brazil trade dispute looms

ANOTHER BRUISING trade its sales price in the U.S., Fairchild Industries, is that dispute between the U.S. and according to Fairchild esti-Brazil is looming over charges mates.

Fairchild Industries, is that Government which is a Brazilian Government controlled com-Brazil is looming over charges mates. that the Brazilian government has unfairly aided the develop- U.S. Department of Commerce ment and export of the and the International Trade facture and export of the country's most successful Commission which will deterentirely and export of the country's most successful Commission which will deterentirely and export of the country's most successful Commission which will deterentirely and export of the country's most successful Commission which will deterentirely and export of the country's most successful Commission which will deterentirely and export of the country's most successful Commission which will deterentirely and export of the country's most successful Commission which will deterentirely and export of the country's most successful Commission which will deterentirely and export of the country's most successful Commission which will deterentirely and export of the country's most successful Commission which will deterentirely and export of the country's most successful Commission which will deterentirely and export of the country's most successful Commission which will deterentirely and export of the country's most successful Commission which will deterentirely and export of the country and export

steel products are all on the ings following the lodging of seeking to challenge Western current list of headaches the Fairchild petition on companies in their fields. between the two countries. With August 13.
the exception of steel, where Fairchild makes clear that the exception of steel, where the U.S. has dropped five out of six specific complaints, all the other disputes are virtually

it regards its complaint against the Brazilian manufacturer as a offering its U.S. customers test case. Government officials interest rates less than half of Fairchild Industries, the encourage the major U.S. manu- of its own Metro 'aircraft. As struggling U.S. aircraft manufacturer, has formally asked the Douglas, to take similar action Embraer's share of the com-U.S. government to impose against their main foreign com-

The petition is now with the pany, receives numerous subsidies on the development, manulanderrante, the ramoraer mine whether are a case to which could be allegen against landerrante.

answer. The ITC has 45 any of many similar manufacturers, shoes, sugar and days to come up with its find-turers in developing countries,

Fairchild Swaringen also says that Embraer has recently been believe the outcome could those required for the purchase muter aircraft market has grown countervailing duties on the petitor. Europe's Airbus to almost 35 per cent in its Bandeirante, an 18-seat com- industrie. launch in the U.S. three years muter aircraft. These duties The petition from Fairchild ago, and that its own position

# Japan steel mills deny dumping

commenting on the reported prelinimary ruling that heat-resist-

> The preliminary ruling is the result of the Commerce Departranged from 0.62 per cent to 10.14 per cent of the product's

sold at a price below that charged in the exporters home market or below the manufacturers costs of production.

of such tubular products from the three Japanese mills will be required to post bond equal to the dumping margin—effectively raising the price of the

24.000 net tons of the pipe and tube products worth about \$85m were shipped into the U.S. List year. But they were unable to say how much of that steel was covered by the ruling.

A final ruling is due by November 1. If today's finding is unheld, the bonding requirements could be replaced by permanent penalty duties.

By K. K. Sharma in New Delhi

THE INDIAN Government has rejected complaints by domes-tic companies that foreign concerns are taking advantage of

The complaints relate mainly to imports of soda ash and poly-ester and viscose fibres, the prices of which have fallen sharply following a glut. The government has rejected com-plaints that free imports of such

was that the imports were wel-comed by user industries which claimed that domestic producers had raised prices to show

### Taiwan eases curbs on Japan

TAIPEI—Taiwan bas lifted restrictions on \$42 Japanese consumer and fishery products, economic officials confirmed

vesterday. The economic ministry an-

### BUILDING SOCIETY RATES

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Paul Cheeseright reports on a UK company in a new series of occasional articles about consultants at work

# Facing up to a tougher future

BRITISH CONSULTANTS have is increasing competition to be is no accident. It has been had a good run, but they are faced from engineering consul-facing a difficult decade, according to Mr Des Sainsbury, a Sainsbury observed that Atkins director at W.S. Atkins, one of is competing more with consul-

Invisible earnings from consulting engineers have risen steadily to £487m last year to move to higher value work from £401m in 1979. This year, in high technology areas and in according to the Association of top level management. Consulting Engineers, new work is keeping ahead of work finish-in practice was evident at the

salaries and local expenses.

Against this, there has been Atkins has been called in. some reduction in interest rates and inflation which, noted Atkins, was coupled with a fall management assistance. Personin the value of sterling and has nel from the group have been improved competitiveness. The welded into the management group's pretax profits in the teams to help control of the year to last March rose sharply to £1.6m from £794,000 the and quality of the contractors'

But in the longer run, there Atkins' involvement in Libya

the biggest of the UK consulting tants from, for example, Brazil. able consulting contract ever groups.

India, the Philippines, and the granted to an independent

ing off and there could be a 12 developing steel complex at per cerit rise in earnings. Misurata in Libya. Dastur of The immediate problem for India won the general consultants, the Committee tancy contract early on, but partly instrumental in encouraging Atkins to develop the North that margins are still under are committed to heavy spend-great pressure from rising ing in a sector of which they have no first hand experience,

> The contract it has won provides for technical and project

cultivating the North African markets for 20 years. Indeed. last year it completed what is believed to be the most valu-

Since 1969 it had been working on the El Hadjar steelworks expansion project for Société Nationale de Siderugie of Algeria — a contract which lasted so long, it took 3m man-hours of work by Atkins'

African markets, but the group's activities are worldwide. It had a 1981-82 turnover of £46.9m, of which 43 per cent came from overseas.

At any one time, both at home and abroad, the group can be working on more than 250 contracts. Each has a project manager, responsible to a project director and a senior director who would be responsible for operations in a distinct

gether from within the group the resources needed for a particular task. Atkins, from its base in Epsom, Surrey, bas a total of 2,000 personnel split into divisions corresponding to particular disciplines and sectoral activities.

Atkins is best known for its work in the steel industry, Mr Sainsbury noted, and it tends to have knowledge of the projects being considered around the world and when they will come up.

In the case of the Misurata steel complex. Atkins knew five years ago that the Libyan Covernment was planning a development, so it maintained contact.

On capital projects like Misurata, total consultancy costs to the buyer could amount to between 2 per cent and 7 per cent of the total outgoings. The consultancy work will go through several phases, starting with basic feasibility studies, through project development to

Atkins is often in competi tion with plant contractors for feasibility studies, which Mu Sainsbury said, might be offered free, although their price would wrapped up in the possibility of plant sales. "The original ceptual work needs to be

**Consultants** 

at Work

Contractors have a basic interest in making and selling equipment; their minds are not geared conceptually, according to Mr Sainsbury, "All contractors' efforts are on the physical side—they don't think in terms of the market or the product

done by a consultant indepen-dently. It sets the project in

the market place."

For a consultant, the ques-tion is how to establish what a client needs and how the need can be met. "If you have 100 people on an air route, you don't need a jumbo jet."

### SHIPPING REPORT

### Hopes for market balance

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cause business is so slack, the uneconomically, market could return to balance Already this year, 15m dwt earlier than expected.

rently depressed rate structure very light. in the charter market, com-mented E.A. Gibson Shipbrokers

tanker surplus. As well as the envisaged."

WITH A record amount of laid-up vessels, some 13½m dwt tanker tonnage—some 55m are used for storage and an un-deadweight tonnes—laid up be- specified number simply trading

earlier than expected. have been scrapped—more than
Such hopes, however, have no
immediate impact on the curthe new building programme is

Thus, it adds, "the equilibrium for modern efficient in its weekly review.

But a number of factors are trading should be reached combining to reduce the large earlier than perhaps previously

### Motorola urges action on Japanese bleepers

BY LOUIS KEHOE IN SAN FRANCISCO

MOTOROLA Inc. of Schaumberg Ilinois has filed a petition with the U.S. Commerce Department and the International Trade and the international frame Commission asking for anti-dumping action against a Japanese manufacturer of pagers—the bleeping message Motorola, Japanese entry into the \$400m (£235m) U.S. market, for pagers in late 1981, caused a precipitous price drop.

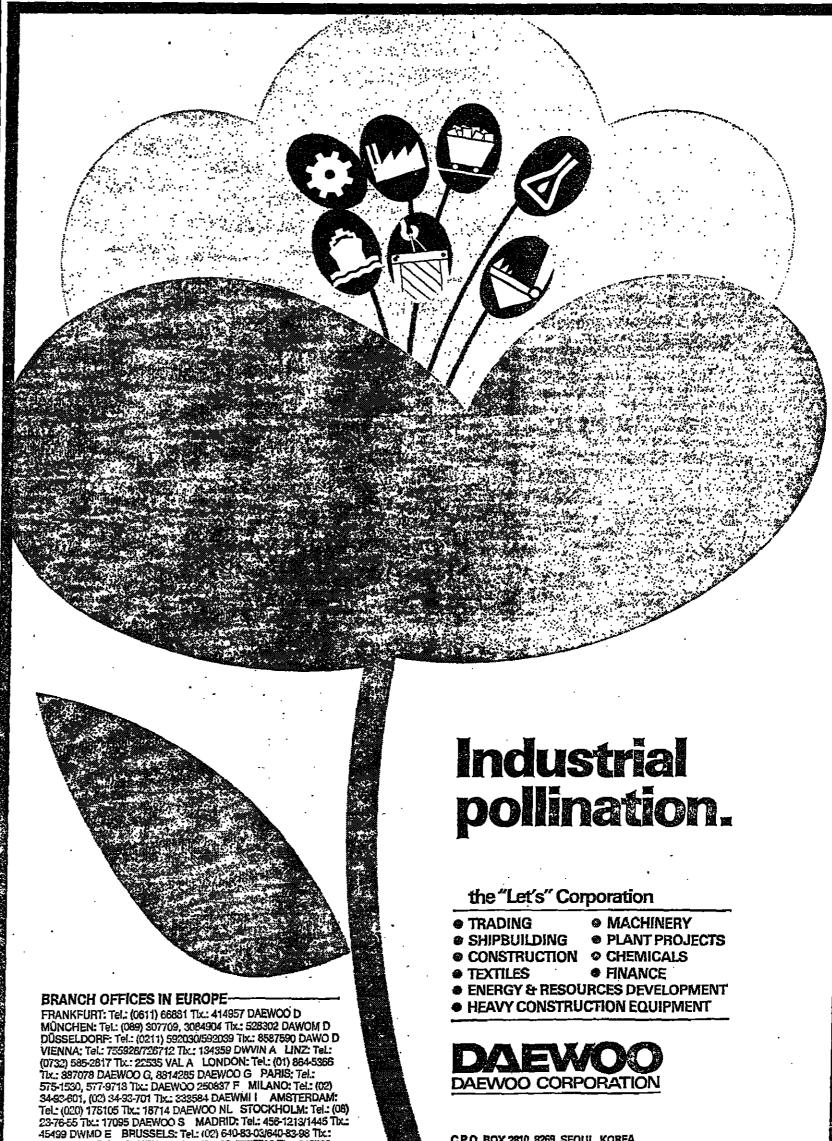
lent Matsushita pager was of Jeddah. priced at \$215 in Japan at that time. Motorola contends. The dictation devices. According to Matsushita devices were immediately successful in the engineering company in the

Matsushita took orders for 25 to execution of the project. 30,000 units in October 1981.

### Thyssen wins £101m project in Saudi

A UNIT of the diversified Motorola says that in October | Thyssen steel group has received 1981, Matsushita introduced a a DM 435m (£101m) order to pager device in the U.S. selling erect a big commercial centre here for \$79 to \$90. An equiva- at the Saudi Arabian port city The order went to Thyssen

Saudia, a subsidiary of Thyssen Rheinstahl Technik GMBH, the U.S. market. Motorola says that Thyssen group that supervises



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# EEC reaches deal with Turkey on cotton yarn exports

BY GILES MERRITT IN BRUSSELS

arrangement reached between system to ensure that the quotas Brussels and Ankara on established for different EEC Turkey's cotton yarn exports, member States are not exceeded. and a mutual agreement to drop restrictive measures that had stemmed from their cotton row. The European Commission has now negotiated a special

EEC-TURKISH relations are of 75,500 tonnes. The pact also expected to improve discernibly contains a system of export as a result of the new bi-lateral price minima and a surveillance

The quotas range from 25,540 tonnes for West Germany and 29,990 tonnes for Italy this year down to 3,600 tonnes for the UK and just 21 tonnes for Greece export restraint deal with No figures have yet been agreed Turkey that will for this year between Brussels and Ankara limit Turkish cotton yarn sales for quota ceilings on cotton in the EEC to an overall figure exports during 1983.

### **World Economic Indicators**

FOREIGN EXCHANGE RESERVES

	(U.S.Sm)		
lune '82	May '82	Apr. '82	June 81
		†1,644	74,837
2.262	2,183	2,203	4,886
12.859	11,482	11,420	15,870
7,146	7,463	7,559	7,616
37,408	38,045	37,624	44,618
21.702	22,801	: 23,102	. 24,245
9.000	9,150	10,090	10,751
May '82	Apr. '82	Mar. 82	May '81
13,669	15,260	17,439	27,201
	12,8\$9 7,146 37,408 21,702 9,900 May 82	10,574 11,134 2,262 2,183 12,859 11,482 7,146 7,463 37,408 38,045 21,702 22,801 9,000 9,150 May 82 Apr. 82	June '82 May '82 Apr. '82 10,574 11,134 11,644 2,262 2,183 2,203 12,859 11,482 11,420 7,146 7,463 7,559 37,408 38,045 37,624 21,702 22,801 23,102 9,000 9,150 10,090 May '82 Apr. '82 Mar. '82

### INSURANCE

# Problems of brokers' in-house schemes

BY JOHN MOORE, CITY CORRESPONDENT

broker, that insurance company subsidiaries within its new UK acquisition Alexander Howden Group are under-reserved, high-lights the problems which can brokers attempt to operate in-bouse company activities. insurance Insurance brokers buy insur-

ance on behalf of clients from insurance companies. They are expected by the clients, who range from individuals to multinational companies, to place clients' business in secure markets at competitive premium

syndicates, into which they place their business.

flowing to their groups are not exceeded by the insurance interest rates, many insurance companies are prepared to take loss on their business to preserve market share by offering competitive insurance rates. The money which they earn on invested premiums usually enables them to show an overall

have in recent years been keen commission payment paid out of to develop their own in-house premiums to the brokers, will insurance company operations. In doing so the brokers hope to enhance the amount of revenue brokers in the late 1970s were which can be generated by any one big ticket account, such as the insurances of a major indus- and trial company, or secure smaller interests, were making huge lines of insurance business for amounts of money on these their own group which look like forms of captive commission being extremely profitable (that arrangements.

The U.S. brokers were pro-

not likely to exceed premiums). Some brokers in the UK have created a number of insurance company underwriting facilities in addition to their management to lay off risks after falling of Lloyd's of London underwrite stock market values had eroded ing syndicates. In their their reserves. In their reserves. Now, while U.S. brokers have arranging insurance cover may gained a larger share of the choose to start their insurance world commission cake through

THE REVELATION last week their Lloyd's underwriting by Alexander & Alexander syndicates or lines of other re-Services Inc. the U.S. insurance insurance business.

insurance business.

As a broker places a piece of business he takes a commission. If he arranges a complex re-insurance programme on a big account he will be using many companies offering reinsurance. In placing the risk he could be taking a commission many times over on any one piece of

If the broker is arranging the reinsurance programme with his own insurance companies, he will, in effect, be converting risk-bearing insurance premiums into non-risk bearing insurance broking commissions for his own group.

The brokers are not remune-rated by their clients but are paid commissions by the insur-sidiary companies are allways ance companies or other likely to appoint the parent insurance interests, such as broker as the placing broker Lloyd's of London underwriting on major reinsurance accounts rather than other independent brokers. The subsidiary insur-Insurance companies earn ance companies should receive their money by attempting to profitable business,

make sure that the premium This form of premium stripping only works when insurance business is likely to be profitclaims they have to pay out.

In an era of historically high freak series of very large claims -for example, on computer leasing insurance business or an underlying underwriting asbestosis—will mean that re-loss on their business to pre-

This is because, as the insurance business has been threaded in and out of in-house companies In the UK insurance brokers and back again, so the cost of

have risen dramatically. The acquisition moves by U.S. prompted by the realisation that UK brokers, with large Lloyd's insurance

ducing enormous amounts of reinsurances and other business for Lloyd's in the mid-1970s because insurers in the U.S. had

choose to start their insurance world commission cake through programme with their syndicates at Lloyd's of London. Usually, however, they prefer to become more closely associated with the more remote reconciled.

# charges

mill have denied a dumping charge by the U.S. commerce department. Sumitomo Metal Industries, Nippon Kokan K.K. and Sanyo Special Steel, were ing and stainless pipes and tubes from the Japanese mills were sold in the U.S. below their fair market value.

ment's investigation of a dumping complaint by Babcock and Wilcox Company of Beaver Falls, Pennlylvania. The Department said the dumping margins

Dumping occurs when steel is

As a result of the prelimin-ary ruling last week importers

products to fair value.
U.S. officials said n

### India rejects attack on trade regime liberalisation

its liberal trade policy to dump their products in the country.

raw materials has adversely affected domestic interests.

One reason for the rejection that cheap imports were affecting sales and capacity utilisa-

nounced late on Saturday that Taiwan would resume imports of the 842 Japanese items as a first step to honour its commitment to phase out restrictions it had earlier placed on 1,500 Japanese products.

By Eric Short

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NATIONAL SAVINGS are falling well behind the £3bn target set by the Treasury as its contribution to overall funding for

Net National Savings receipts for July fell £15m on the month to £138.7m, bringing total net contributions by National Savings for the first four months of the current financial year to £504.3m — barely half the required amount of £1bn at this stage of the year.

However, moves announced by the Treasury on July 22 to post the attractiveness of National Savings to the investing public came too late to have much influence on July's

The first move, which doubled the maximum holding in index-linked National Savings Certificates (still known as Granny Bonds) even though they are now available to all investors) from £5.000 to £10,000 applied from Monday, July 26, so was only effective for one week in

The other move, the launch of a National Savings income bond, took effect on Monday,

The Department of National Savings reports that both these offers have resulted in a sub-statial boost for savings. Des-pite strong Press criticism over the penalties for early cash-in income bonds worth £5.7m were sold in the first week and bonds worth £14.5m the second week. Granny Bonds worth £25m were sold in the final week of July, compared with an average

weekly sale up to then of £15m. Even so, total granny bond sales in July at £98.5m failed to reach £100m for the first time in many months, being £8m lower than in June.

The department however puter will be available in reports a strong recovery of Granny Bond sales in August volume production plant and

will be free of stemp duty.

penultimate interest dayment.

TENDERS MUST BE LODGED AT THE BANK OF ENGLAND. NEW ISSUES (B). WATLING STREET, LONDON, EC4M 9AA NOT LATER THAN 10.00 A.M. ON THURSDAY, 25TH AUGUST 1982, OR AT ANY OF THE BRANCHES OF THE BANK OF ENGLAND OR AT THE GLASGOW AGENCY OF THE BANK OF ENGLAND NOT LATER THAN 3.30 P.M. ON WEDNESDAY, 25TH AUGUST 1982.

ISSUE BY TENDER OF £250,000,000

2½ per cent INDEX-LINKED

TREASURY STOCK, 2001

PAYABLE IN FULL WITH TENDER

INTEREST PAYABLE HALF-YEARLY ON 24th MARCH AND

24th SEPTEMBER

1. The Stock is an investment falling within Part II of the First Schedule to the Trustee Investmente Act 1951. Application has been made to the Council of the Stock Exchange for the Stock to be admitted to the Official List.

2. THE GOVERNOR AND COMPANY OF THE BANK OF ENGLAND ere authorised to receive tenders for the above Stock.

3. The principal of and interest on the Stock will be a charge on the National Leans Fund, with recourse to the Consolidated Fund of the Linited Kingdom.

Loans Fund, with recourse to the Consolidated Fund of the United Kingdom.

4. The Stock will be registered at the Bank of England or et the Bank of Ireland, Balfast, and will be trensferable, in multiples of one penny, by instrument in writing in accordance with the Stock Transfer Act 1963. Transfera

5. If not previously redeemed under the provisions of paragraph 14. The Stock will be repaid on 24th September 2001. The value of the principal on repayment will be related, subject to the terms of this prospectus, to the movement, during the life of the Stock of the United Kingdom General Index of Retail Prices maintained by the Department of Employment, or any Index which may replace that Index for the purposes of this prospectus, such movement being indicated by the Index figure issued monthly and subsequently published in the London, Edinburgh and Belfast Gazettes.

6. For the purposes of this prospectus, the Index figure applicable to any month will be the Index figure issued seven months prior to the relevant month and relating to the month before that prior month: "month" means calendar month;; and the Index ratio applicable to any month will be equal to the Index figure applicable to that month divided by the Index figure applicable to August 1907.

7. The amount due on repayment, per £100 nominal of Stock, will be £100 multiplied by the index ratio applicable to the month in which repayment takes place. This amount, expressed in pounds sterling to four places of decimals rounded to the nearest figure below, will be announced by the Bank of England not later than the business day immediately preceding the date of the

8. Interest will be payable half-yearly on 24th March and 24th September. Income tay will be deducted from payments of more than (5 per annum. Interest warrants will be transmitted by post.

9. The first interest payment will be made on 24th March 1983 at the rate of £1.5044 per £100 nominal of Stock.

10. Each subsequent half-yearly interest payment will be at a rate, par £100 nominal of Stock, of £1.25 multiplied by the Index ratio applicable to the month in which the payment falls due.

11. The rate of interest for each interest payment other than the first, expressed as a percentage in pounds sterling to four places of decimals rounded to the nearest figure below, will be announced by the Bank of England not later than the business day immediately preceding the date of the previous interest

permant.

12. If the Index is revised to a new-base efter the Stock is issued, it will be necessary, for the purposes of the preceding peragraphs, to calculate and use a notional index figure in substitution for the Index higure applicable to the month in which repayment takes place and/or an interest payment falls due ("the month of payment"). This notional index figure will be actualted by multiplying the actual index figure applicable to the month of payment by the Index figure on the old base for the month on which the revised index is based and dividing the product by the new base figure for the same month. This procedure will be used for each occasion on which a revision is made during the lite of the Stock.

the life of the Stock.

13. If the Index is not published for a month for which it is relevant for the purposes of this prospectus, the Bank of England, after appropriate consultation with the relevant Government Department, will publish a substitute Index figure which shell be an estimate of the Index figure which would have been applicable to the month of payment, and such substitute Index figure shell be used for all purposes for which the actual Index figure would have been relevant. The calculation by the Bank of England of the amounts of principal and/or Interest payable on the basis of a substitute Index figure shell be conclusive and binding upon all stockholders. No subsequent adjustment to such amounts will be made in the event of subsequent publication of the Index-figure which would have been applicable to the month of payment.

14. If any change should be made to the coverage or the basic calculation of the Index which, in the opinion of the Bank of England, constitutes a fundamental change in the Index which would be materially detrimental to the interests of stockholders, Her Majesty's Treasury will publish a notice in the London. Edinburgh and Baltisst Gazettes immediately following the announces.

London, Edinburgh and Belfast Gazettes immediately following the announcement by the relevant Government Department of the change, informing stock holders and offering them the right to require Her Majesty's Treasury to redeem their stock. For the purposes of this paragraph, repayment to stockholders who exercise this right will be effected, on a data to be chasen by Her Majesty's Treasury, not later them seven months from the last month of publication of the old Index. The amount of principal due on repayment and of any interest which has accrued will be calculated on the basis of the Index ristic applicable to the month in which repayment takes place. A notice setting out the administrative arrangements will be sent to stockholders at their registered address by the Bank of England at the appropriate time.

Bank of England at the appropriate time.

15. Tenders must be fodged at the Bank of England, New Issues (B), Watting Street, London, EC4M 9AA not later than 10.00 A.M. ON THURSDAY, 26TH AUGUST 1982, or at any of the Branches of the Bank of England or at the Glasgow Agency of the Bank of England not later than 3.30 P.M. C' WEDNESDAY, 25TH AUGUST 1982. Each tender must be for one amount and at one price which is a multiple of 25p. Tenders will not be revocable between 10.00 a.m. on Thursday, 26th August 1982 and 10.00 a.m. on Wednesday, 1st September 1882, TENDERS LODGED WITHOUT A PRICE BEING STATED WILL BE RELECTED.

15. Tenders must be accompanied by payment in full, i.e. the price tendered for every £100 of the nominal smount of Stock tendered for. A separate cheque must accompany each tender: cheques must be drawn on a bank in, and be payable in, the United Kingdom, the Channel Islands or the isle of Man. 17. Tenders must be for a minimum of £100 nominal of Stock and for multiples of Stock as follows:

18. Her Majesty's Trassury reserves the right to reject any tender or to allot a less amount of Stock than that tendered for. Valid tenders will be ranked in

ing order of price and allotments will be made to tenderers whose are at or above the lowest price at which Her Majesty's Tressury

£25,000

Amount of Stock tendered for

£100-£1,000 £1,000-£3,000 £3,000-£10,000

£10,000—£50,000 £50,000 or greater

# Voters with the Calvinist view

BY JOHN HUNT

a study which they commissioned indicates that the high level of unemployment is unto be followed up by quantita-likely to lose the Tory party a tive research amongst 2,000 large number of votes at the people across the country. next general election.

committed voters do not blame monthly newsheet which, says the situation on any one party and believe it has developed under successive governments. The research was, however, of a tentative nature. It was a qualitative programme carried out by BJM Research in which eight groups of 12 people were questioned in Liverpool, the

SPECULATION IS growing in

Scotland that IBM will manu-

facture personal computers for

the European market at its

Although IBM is refusing to

comment it is known that Greenock is one of the leading

contenders for the project in

competition with plants in other

The IBM Personal Computer

was launched in the U.S. last

August and has been selling in

comparable numbers to the established market leaders

Apple and Tandy. It has been

so successful that IBM has had

The IBM Personal Computers

have been available in Europe

in very limited quantities as

some companies have bought

them from U.S. retail outlets

to resell in the UK and else-

where. IBM has not yet announ-

ced when the Personal Com-

problems meeting demand.

plant in Greenock.

European countries.

were invited in off the street. Such research is now likely The results are published in The survey showed that un- Conservative Newsline, a new

> Central Office, is intended to enthuse party workers. Party officials speak of the need to keep members informed and involved over the next 12 to 18 months-indicating that they anticipate the election next

According to Newsline the re-Midlands and the South-East. sponses show that the public They represented a cross-section expects Opposition politicians

would be suitable for making

will include the balance of

• ICL, Britain's largest com-

puter manufacturer, looks strongly placed to win a £50m

contract to supply computer terminals for the Inland Reve-

In 1980 ICL was awarded a

major contract to supply power-

ful mainframe computers for

the computerisation of the

row as other manufacturers

were not invited to tender. IBM

fought strongly for an open

decide that any tender should be accepted (the allotment pince). All allotments will be made at the allotment price and tenders which are accepted and which are made at prices above the allotment price will be allotted in full. Any belance of Stock not allotted to tenderers will be allotted at the allotment price to the Governor and Company of the Bank of England, Issue Department.

19. Letters of allotment in respect of Stock ellotted, being the only form in which the Stock may be transferred prior to registration, will be despective by post at the risk of the tenderer, but the despetch of any letter of allotment, and any refund of any excess amount paid, thay at the discretion or the Bank of England be withheld until the tenderer's chaque has been paid, in the event of such withhelding, the tenderer will be notified by letter by the Bank of England of the acceptance of his tender and of the amount of Stock allocated to him, subject in each case to payment of his chaque, but such confidention will confer up right on the tenderer to transfer the Stock so allocated.

20. No allotterer will be made for a lone event then \$100 Stock to the stock to the stock of the stoc

22. Tender forms and copies of this prospectus may be obtained at the Bank of England, New Isaues, Watling Street, London, ECAM SAA, or at the Bank of England, or at the Glasgow Agency of the Bank of England, or at the Glasgow Agency of the Bank of England, or at the Glasgow Agency of the Bank of Ingland, 25 St. Vincent Place, Glasgow. G1 2EB; at the Bank of Ireland, Moyne Buildings, 1st Floor. 20 Callender Street, Balfast, BT1 55N; at Mullers & Co., 15 Moorgate, London, EC2R SAN; or at any office of The Stock Exchange in the United Kingdom.

THIS FORM MAY BE USED

TENDER FORM

This form must be lodged at the Bank of England, New Issues (B), Watling Street, London ECAM SAA not later than 10,00 A.M. ON THURSDAY, 25TH AUGUST 1982, or at any of the Branches of the Bank of England or at the Glesgow Agency of the Bank of England (25 St. Vincent Plece, Glasgow G7 25B) not later than 3.30 P.M. ON WEDNESDAY, 25TH AUGUST 1982.

ISSUE BY TENDER OF £250,000,000

2½ per cent Index-Linked

Treasury Stock, 2001

1/We tender in accordance with the terms of the prospectus dated 20th August 1982 as follows:

Amount of above-mentioned Stock tendered for, being a minimum of £100 and in a multiple as follows:—

£100 £500 £1,000

SIGNATURE ......

of, or on behalf of, tenderer

COUNTY

SURNAME

POSTCODE

STAMP OF LODGING AGENT

1. NOMINAL

2. AMOUNT OF PAYMENT (a)

AMOUNT OF STOCK

TO THE GOVERNOR AND COMPANY OF THE BANK OF ENGLAND

Amount of Stock tendered for Multiple

Sum enclosed, being the amount required for beyment in full, i.e. the price tendered for every £100 of the nominel, amount of Stock tenderded for:—

The price tendered per £100 Stack, being a multiple of 25p (tenders ladged without a price being stated will be rejected):—

.. August 1962

FORENAME(S) IN FULL

POST-TOWN

PLEASE USE BLOCK LETTERS

FULL POSTAL

ADDRESS:--

£100-£1,000

£1;000—£3,000 £3,000—£10,000 £10,000—£50,000

The decision caused a major

the Personal Computer.

location.

PAYE system.

RANK OF ENGLAND LONDON 20th August 1982

lity for unemployment.

**UK NEWS** 

Labour and SDP claims about their ability to solve the the floaters," it states. " And the views that unemployment was all the fault of the Government."

The Government was not seen steps it had taken to root out poor working practices, overwere seen as necessary.

unemployed at the next general election but wanted to see the trend levelling out or dropping. Many of the groups empha- ment.

RESEARCHERS at Conservative of socio-economic groups, all and trade union leaders to ac-central Office are claiming that without party affiliation, and cept their share of responsibi-strong political leadership, which was interpreted by Central Office as a plus factor for Mrs Thatcher, Researchers were problem were not believed by also surprised to find that the groups took an "almost Calvoters did not share the critics' vinistic view" of the need for personal responsibility, achievement and effort.

> Newsline also announced that as free of responsibility, but the the party has formed a Campaign for Defence and Multilateral Disarmament headed by manning and uncompetitiveness Mr Winston Churchill, Conser-were seen as necessary. Mr Winston Churchill, Conser-vative MP for Stretford. The The groups saw about 3m campaign is intended to head nemployed at the next general off any electoral threat posed by the growing strength of the Compaign for Nuclear Disarma-

### enock may make Low stock levels 'a threat to recovery' **Personal Computers**

BY MAX WILKINSON, ECONOMICS CORRESPONDENT

A LOW LEVEL of stocks in the will be reduced. Other factors in the decision workloads at IBM's European Economic Quarterly Review to tulfil their requirements. plants, costing and the number of employees. Greenock's good published today.

levels of productivity are in its The institute, which is part favour. Possibly against it is that it employs nearly 2,500 of the university of Strathclyde. people. This is about the comevidence of a substantial return to stockbuilding in the UK. pany's maximum limit for one

Since real rates of interest remain high, the costs of increasing the ratio of stocks to output are significant.

are twofold: firstly without a return to lower real rates of interest the upward impetus normally generated at this stage of the cycle by the rebuilding of stocks will be drastically reduced.

"Secondly, if British businesses now expect to work with permanently lower stock/output reflate their economies. tender which is now required ratios, their capacity to meet under EEC and GATT rules. | unforeseen changes in demand

If domestic suppliers are un-UK economy could pose a "If domestic suppliers are un-threat to recovery by encourage able to meet sudden increases in ing imports the Fraser of orders, purchasers will inevit-Allander Institute warms in its ably turn to foreign suppliers The institute says that any

lower stock levels could be very says that so far there is little dangerous unless accompanied by an increase in the flexibility production. The institute also point out that it will be impossible for all

move towards permanently

countries to achieve a recovery based on higher exports and The institute says: "The im- restricted home demand. plications of this development "While individual go "While individual govern-

ments may see this as desirable, it is only concerted action to increase demand which will pull the world economy out of reces-It says countries like the UK

with very large trade surpluses will come under the strongest pressure to take action to It argues that devaluation

would not be able to provide much of a stimulus to the economy without adversely affecting prices. And it says no reflationary policy can avoid the risk of increasing the rate of price inflation, even when extra government spending is extra government involved.

To says: "The Government this

must surely be aware of this and the likelihood that it will be prepared to run such risks must be increasing as the election looms ever closer."

The Fraser of Allander Insti-tute Quarterly Economic Commentary Vol 8 No 1. University of Strathclyde. 100 Montrose Street, Glasgow. £2.

# notification will confer no right on the tenderer to transfer the Stock so allocated. 20. No ellotment will be made for a less amount than £100 Stock. In the event of partial allotment, or of tenders at prices above the allotment price, the excess amount peid will, when refunded, he remitted by cheque despatched by post at the rak of the tenderer; if no allotment is made the amount peid with tender will be returned likewise. Non-payment on presentation of a cheque in respect of any Stock allotted will render the ellotment of such Stock Teble to cancellation. Interest at a rate equal to the Lendon Inter-Sank Offered Rate for seven day deposits in starting ("LIBOR") plus 1 per cent per annum may, however, be charged on the amount payable in respect of any allotment of Stock for which payment is accepted after the due date. Such rate will be determined by the Bank of England by reference to market quotations, on the due date for such payment, for LIBOR obtained from such source or sources as the Bank of England shell consider appropriate. Statement on 21. Letters of allotment may be split into denominations of multiples of £100 on written request received by the Bank of England. New Issues, Watting Street, London, ECAM SAA, or by any of the Brenches of the Bank of England, on any date not later than 29th September 1982. Such requests must be signed and must be accompanied by the letters of allotment, Letters of allotment, accompanied by a completed registration form, may be lodged for registration forthwith and in any cass they must be lodged for registration not later than 1st October 1982. Lear talks DOSSIDIE

By Our Belfast Correspondent EAR FAN, the Northern

Ireland company which has more than £30m of Government backing for a plan to build a carbon fibre executive aircraft. may this week indicate the progress of negotiations to raise overdue private development capital.

The U.S. parent company Learavia Corcoration, is having talks with several interested parties who might sumply the estimated 550m needed to see the aircraft through its certifi cation programme and into production.

Beech Aircraft Corporation, a leading U.S. light aircraft manufacturer, is said to be consider-ing a bid for the company. Beech's chief executive, Mr Lindon Blue, resigned as Lear Fan's managing director in April

Saudi Arabian investors, acting through a European company, have also been in talks. Lear Fan directors were not available yesterday to comment on a report that a decision on the refinancing options would

be made on Thursday.

The Government initially committed \$27m of redeemable loans and grants to the project, and added a further film earlier this year while the search for private capital continued.

The Northern Ireland Department of Commerce, which has a minority holding, would say only that it was closely in touch with the situation. Twelve De Larean sports cars which have been held by

I/We request that any letter of ellotment in respect of Stock ellotted to me/us be sent by post at my/our risk to me/us at the address abown below. Northern Ireland Carriers against a £67,000 debt are to he publicly auctioned September 14.

### **Prospectus** for biotech must await appointment

By David Fishlock, Science Editor

THE BRITISH Technology Group (BIG) will appoint senior husiness manager and a chief executive before it issues a prospectus for its proposed £15m biotechnology venture.

The venture, to be based on research by the Agricultural Research Council, will try to exploit genetic engineering techniques for the agricul-tural industry, such as Cell-tech—the first genetic engineering company backed by BTG-is developing new technology for the drug industry.

The potential for genetic engineering in agriculture ranges from giving plants resistance to diseases, pests and the weather, to increasing the yield and uniformity of a

But no company prospectus has been issued yet, and no final decision taken on the capital required to launch the new company, while the appointment of a new chief executive is awaited.

A spokesman for BTG denied that Ultramar, the UK oil company had put money into the venture, but said it was "a potential investor." BTG was also seeking institutional investors. It wanted to commit as little of its own money to the venture "as it can get away with," the spokesman said. BTG sees its main role as midwife to the new company, which it hopes will be born before the end of the year.

One formula being dis-cussed with potential in-vestors is for total launch capital of £15m spread over five years. The figure is based on the £12m with which Celltech was launched in 1980, increased according to inflation. The BTG investment in Celliech was £5m. No name has been registered

for the venture, but BTG staff refer to it as "Agrigene" or 'Celitech's country cousin." They stress, however, that it will not be a carbon copy of Celitech—drawing only on those parts of the Celitech blueprint which are approp-

One difficulty voiced by some potential investors concerns the role of the Agricultural Research Council (ARC) and its ability to deliver the results of basic scientific research with the facility which the Medical Research Council (MRC) guaranteed to Celltech. For example, the MRC had transferred all its information on monoclonal antibodies to Celltech in little more than a year.

The research institutes of the ARC have a strong tradi-tion of Independence from the ence from t London headquarters of the

### Bribes reaction

BRITISH LEYLAND and Ford are ready to investigate any specific allegations that stoff have been bribed over the placing of multi-million pound contracts. The com-panies said they did not have the full details of allegations made in yesterday's News of the World that staff were bribed, but said if any specific allegations were made they would be investigated.

Detective Chief Superintendent Colin Powell, the head of West Midlands CID, said The West Midlands police are not as yet in possession of any detail of these allegations.

### Telephone advice

BRITISH TELECOM customers are having problems with the telephone service from Britain to Antwerp, Belgium. The Belgian tele-phone authority has changed the dialling code for Antwerp from 31 to 3. Numbers in Antwerp have also been changed by the addition of a further prefixed figure. Custo-mers needing help are advised to contact the international operator.

### Hadfields capacity

IN June, 1981, Hadfields, the Sheffield engineering steel maker, cut its 350,000 per year capacity by two thirds and made 1.800 of its 2,600 workforce redundant. A table in Saturday's editions of the FT stated erroneously that the company had closed down completely its engineering steel production.

## Kodak introduces four instant cameras today

BY ELAINE WILLIAMS

EASTMAN Kodak is to intensify previous designs. its attack on the instant camera market with the introduction cameras comes from film sales, today of a new range of cameras. rather than the cameras them-It is trying to challenge selves. There being only two Polarold's domination of the market when global sales of instant cameras are static.

The global annual market for development of instant cameras. instant cameras is about 10m units. Polaroid holds 60 to 70 per cent of the U.S. market. It introduced new models this year

Much of the profit in instant big manufacturers in the sector, business for each is sufficient for continued investment in

Kodak's new range is split into four models, which cost from £20 to £75. Each incorporates sophisticated electronic to stimulate sales. Kodak says circuitry and built-in flash. The that its new Kodamatic cameras cameras will be manufactured are slimmer and cheaper than in the U.S. and West Germany.



The 20,000-tonne concrete loading column is managuared out of Howard Doris's dry dock into Loch Kishorn.

# Loading column will replace oil pipeline

BY RAY DAFTER, ENERGY EDITOR

equipment—a £29m concrete loading column—is making a equipment—a 22m concrete Power and Light (9 per cent); loading column—is making a Ultramar Exploration (6 per slow journey around the north cent); and British Electric of Scotland to Phillips Traction (5 per cent).

Petroleum's Maureen Field, 163 • Tesel Services, a UK company miles north-east of Aberdeen.

the structure to be positioned early next month.

an hour. It is one of a number ment. by the Phillips consortium in THE NORWEGIAN Governof innovations being introduced the Maureen Field.

In order to save offshore steel frame placed on the seabed while the platform is being have been found. completed on shore. The wells will then be joined to the platform when it is positioned next direct to shore.

relatively small size of the field. Industry estimates put recoverable reserves at 170m barrels, compared with 2bn barrels in. Petroleum's Forties Field. Even so, the production and loading equipment-excluding drilling and well costs-is expected to cost over \$1bn (£575m).

Production is expected to begin late next year or early 1984. The average output is process of being established expected to be 72,000 barrels a Norske Hydro is said to be

A UNIQUE piece of oilfield Agip (17.26 per cent); Century Power and Light (9 per cent);

niles north-east of Aberdeen. providing well logging services. The 10,000 tonne column, for the oil industry, has signed some 430 ft tall, is being towed a deal with Houston-based from the Inner Sound, off Skye, Petroleum Service Company. following its construction in Under the arrangement, worth a Howard Doris's dry dock at Loch minimum of 33m to Tesel. Kishorn in Ross and Cromarty. Geosource will manufacture, use The tow is expected to take and market the UK company's about 20 days and should enable range of tools and data analysis equipment in the U.S. and elsearly next month. where, Tesel, based in Basing-The column will be used to stoke, Hampshire, will receive a load tankers of up to 85,000 dwt royalty on all sales during the tons at a rate of 20,000 barrels seven-year, technology agree-

ment has allocated a new oil and gas exploration licence on development work, production part of North Sea block 30/9, wells are being drilled through a diacent to the "silver block" 30/6, where both oil and gas

The area is being opened to exploration so that the three Norwegian companies with summer. The loading column is stakes in block 30/6 can map being used instead of a pipeline the extent of reservoirs bethe extent of reservoirs be-lieved to extend into block The innovations have been 30/8, before planning developintroduced as a result of the ment of the discovery as a whole. The foreign oil companies

with shares in 30/6 have not been included in this licence. It has been awarded to Statoil . (70 per cent), Norske Hydra -(15 per cent) and Saga Petroleum (10 per cent). A 5 per cent stake is being reserved. for the time being, for possible later award to a fourth Norwegian oil company now in the

dissatisfied that it has received-Interests in the Maureen such a small stake in the new Field, lying in block 16/29, are: licence, particularly in view of Phillips (33.78 per cent); Fina the fact that it is to act as Exploration (28.96 per cent); operator.

## Labour attacks Sproat over criticism of BA

BY LYNTON McLAIN

reacted angrily yesterday to the was predict warning by Mr Iain Sproat, the job losses."

Aviation Minister, at the weekend of "more tough measures" to make British Airways profitable and for sale by the next general election. These new.

measures " will be introduced in the coming weeks," Mr Spreat on top management who are said at Aberdeen on Saturday not able to reply to criticism of action " to sell BA. Mr Sproat is Parliamentary Under-Secretary of State for Treas tary of State for Trade, in charge of the Government's plan to denationalise BA.

He also criticised the performance of BA and said: "I could not believe the incompetence I encountered in BA only months ago. It was a quagmire of perks and privilages." Mr Sproat's comments re-kindled fears of further cuts

and job losses at BA, despite Sir John King, the BA chairman, having said last week that suggestions of further redun-dancies were "absolute rub-Mr John Smith, the opposition

spokesman for trade, criticised Mr Sproat on his "vicious attacks on British Airways." He described Mr Sproat's

OPPOSITION MPs, including a "latest outburst" as the worst Shadow Cabinet member, so far, and said the Minister was predicting "more cuts and

Mr Waiter Johnson, Labour MP for Derby South, and chair-man of the Labour aviation group, backed Mr Smith's criticism and said "this was a disgraceful and grossly unfair attack on BA and, in particular,

Government's intention to sell the state-owned airline before the next General Election. which would not be later than May. 1984. He outlined "the timetable of action.

"First, we take British Airways into a trading profit: second, we take it into overall profit: and third, we privatise it. It is my firm intention that we shall do it all before the next General Election."

Mr Sproat praised Sir John King for his "brilliant leader-ship," under which the "giant loss-maker is being turned into a profit-maker." BA is expected to report in September a loss of £350m or more for the 1981-1932 financial year.



**Base Rate** 

BANK OF CREDIT AND COMMERCE INTERNATIONAL SOCIETE ANONYME LICENSED DEPOSIT TAKER

announces that from 23rd August 1982 its base rate is changed

from  $11\frac{1}{2}\%$  to 11% p.a.

100 Leadenhall Street London EC3A 3AD

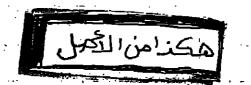
a A separate chaque must accompany each tender. Chaques should be made payable to "Benk of England" and crossed "Treasury Stock". Chaques must be drawn on a bank in, and be payable in the United Kingdom, the Channel Islands or the Isla of Man.

b Each tender must be for one amount and at one price which is a multiple of 25p.

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ACTI iziter

outsid achie grour induc fallin ernm ficatio "shal price more ing to Las whole But 1 year: 1992 ably doubt adopt Plann Lange The farei; over (a) c hon. curre expor :he re into : cultu and (



# Resorts look for 'instant success'

SEASIDE HOTELS and guest houses in many British resorts this year are suffering the first full effects of the recession. The unemployeds' redundancy payment blow-out on holidays by trade over the past two years, is tailing off.

The loss of business from a big proportion of 3m unemployed, together with the longer term effects of a radical change in the pattern of British holidaymaking, is forcing the seaside to look closely at what it has to offer and how it can sell itself.

Resorts. hotel and guest interest in the idea of promoting themselves through the High Street travel agent alongside the overseas package holi-day operators who have taken away much of their business over the past few years.

Next year about 12 resorts. including mighty Blackpool and weather has played a part in the Scarborough, are joining a project called "Holiday UK," offering hotel and guest house holidays through travel agents, and April but then weather and trade also in the "Instant Booking" deteriorated. Eine weather also scheme under which seaside coincided with the start of holidays can be booked through school and industrial holidays tourist information offices in and most resorts began filling inland cities and towns.

In the "Holiday UK" scheme, the resorts will feature in a reflects the basic change in the break holiday in England: the multi-resort brochure offering holiday packages in a range of making. Until a few years ago (holidays of one night or more hotels and guest houses. The resorts expected people to react brochures, like those of the to their national Press advertisoverseas package tour operators, will be on display in February, to send off for a number of nights spent away travel agents' shops and cus-resort's brochure, choose a hotel from home declined from 315m travel agents' shops and cus-resort's brechure, choose a hotel from home declined from 315m tomers can make their bookings and book a good five months or nights to 300m nights over the at the counter. Their 10 per cent more in advance. deposits will be the travel agents' commission.

Both schemes are supported by the English Tourist Board Their main holiday is often private toilet facilities with and by the British Resorts Asso- foreign and they are more likely their accommodation. British ciation. Mr Michael Montague, to book that early than book a chairman of the board, is fond second British one. of saying that it is easier for Blackpool residents to book holidays in Benidorm than in their own town.

The use of travel agents on commission, however, is still and with 20 per cent in 1970, ernment decision

It's not the English seaside we like grants to be made outside the industrial areas under Section to be beside in recessionary times. the sea, which has cushioned reports James McDonald

> disliked and rejected by many the British holiday often takes hotel and guest house owners. A second or even third place. pilot scheme has been operating for two or three years but only this year, after two bad seasons, has it gained wider support.

Just how bad seaside business has been is difficult to estimate, although even in the last few traditional peak season weeks the seaside has declined from vacancy signs could be seen outhouse owners are showing more side hotels and guest houses in many towns.

It is a frank resort tourist officer or hotelier who admits over the same period and holfto having had a disastrous year, but most are willing to talk of "appalling" trade elsewhere on the coastline.

Besides the recession, the

But this fluctuation itself ing campaigns in January and

Many people now leave decisions for a holiday in resorts face is that Britons who, Britain until the last minute, have been abroad expect

With nearly 90 per cent of full-time male paid employees in Britain having four weeks holiday or more a year, comholiday or more a year, com- are trying to remedy this pared with 36 per cent in 1974 deficiency and the recent Gov4 of the Tourism Act will be

The Tourist board has only about £5m available, for grants this year but even this amount should be useful as a pump primer for investment by hoteliers in improved facilities.

A number of resorts are For those who have taken a going to considerable lengths main summer holiday by the to attract trade with special Mediterranean, the British seaevents and attractions. Scar-borough, with state aid, has side resort has to compete with other British tourist attractions. spent about £10m on conference and hotel facilities. The percentage of all holidays England by Britons spent at Geographically it is hammed in by the depressed industrial 39 per cent in 1979 to 36 per Midlands and the North and it cent last year. Holidays in London on the other hand, rose has been beaming much of its promotional publicity to the from 6 per cent to 8 per cent

south and west of England.

Blackpool, also tradionally dependent upon the industrial Midlands and the North West and North, experienced comdays are short breaks of two or paratively good business in three days and seaside hotels March and April but then went and guest houses have had to through a very bad patch. In adjust—rather slowly in many July the town council used cases—to this change and to £125,000 of next year's lourism budget for an advertising campaign. "Business took off end bookings. campaign. "Business took off The greater mobility of the nearly four weeks ago and, with car-owning holiday maker has school holidays and lovely encouraged this swing.

Tourist board statistics illus-doing good trade now," said a

tourism spokesman. Blackpool is still keeping its fingers crossed for it has invested heavily in a long eight weeks "late season." £870,000 has been spent on the famous lights and illuminations which will be switched on on

### Paper for black Londoners

By Lisa Wood

THE FIRST newspaper for London's blacks, The Voice, will be on news-stands at the Notting Hill Carnival August 26.

The Voice is aimed at Britishborn blacks, unlike the expatriate-orientated, more militant Caribbean Times. It will have a weekly print run of 50,000 and cost 20p.

Mr Alex Pascall, managing editor of The Voice, said: "We want to make it clear from the outset that our role will be to unite our multi-cultural society rather than create any differ-

A pilot issue of the paper published loday, was financed with the aid of a £7,500 grant from Hackney Council. carries a wide variety of articles, from details of community meetings with police in Hammersmith and Fulham to ort. TV. motoring and fit problems of black old people. Finance to launch the paper totalling £60.000, was obtained through the Government's Small

### Waterways freight survey

By Andrew Fisher

BRITAIN'S inland waterways carry over 60m tonnes of freight year, according to the first official survey of such traffic in

The survey was compiled for the Departments of Transport and the Environment by Liverpool University's Marine Trans-

land waterways accounts for 1.5 per cent of UK freight when measured in tonne-kilometres. . In 1980, 62m tonnes of freigh went on inland waterways and estuaries, or 2.3bn tonne-kilo-

Of the 2,350 km of waterway track recorded, in the survey. 31 per cent was not used by freight traffic in 1980.

sea accounted for 81 per cent tonne-kilometres moved. Maritime waterways - mainly suitable for seagoing vesselsaccounted for just over 90 per

The goods most commonly carried were petroleum, accounting for 25 per cent of the total, effluent (17 per cent), and crude minerals (16 per cent -mainly sea-dredged aggre

THE EUROPEAN Commission has been asked to investigate claims that drug companies are charging the National Health Service up to 10 times more for their products than they do in other countries. Mr Ken Collins, MEP, has asked the Commission to investigate and take action against any companies it finds overcharging and ignoring the

competition. His call follows a court case last month in which a wholesale chemist was fined £2,380

The chemist, Mr Malcolm

# Cohse may recall conference to seek escalation of health dispute

BY DAVID GOODHART, LABOUR STAFF

TUS health services committee on Thursday is unlikely to back to a head." moves for an all-out strike,

This is partly because two of the unions on the committee-Cohse and the National and Local Government Officers Asso-ciation-would have to consult their membership before step-

But under continuing pressure from the National Union of Public Employees, to back an all-out strike Cohse may decide

to recall its delegates.

Talks today on

pay row in

By Our Labour Staff

Mersey docks

THE EXECUTIVE of the Con- emergency resolution to the terday that the offer would not federation of Health Service TUC.Congress in Brighton next be improved whatever the out-Employees will meet later this month calling for the strike to come of the Royal College of week to discuss the possibilty be spread into other industries. Nursings' ballot on the pay of recalling its annual con- Mr Bob Jones, Nupe national offer. He also justified the difference to endorse an escalation officer, said vesterday: "We ferential on the grounds that of the 15-week health dispute. don't want to see this dispute nurses are more skilled.

The Covernment looks un-

Sir Ian Percival, the Solicitor General, said at the weekend that if the current offer to nurses was accepted every mirse would be receiving at least 50 per cent higher pay than in May

Management and union officials are due to meet today in Derbyshire to try to end an ambulancemen's strike over a bonus payment row.

 Mr Jack Boddy, national secretary of the Transport and likely, however, to Improve the General Workers Union's farmoffer of 6 per cent to oncillary: workers section, has urged his workers and 7.5 per cent to 90,000 members to hack the nurses. Mr Norman Tebbit, health workers 12 per cent

# finances attacked

By Our Labour Editor

THE TUC has east its first stone in a so-far low key cam-paign against UK membership of the European Economic Community.

A leaster published to coincide with Congress concentrates on the EEC's "crazy innances" and says it is "time to cry halt."

It says the UK will pay a net contribution to the EEC this year of £500m—the second highest level of all countrys' budget payments, in spite of this country's having the third lowest income per

The EEC spends 60 per cent of its budget on agriculture, says the leadet, and this "dominance of spending . . . remains the main reason for our problems."

In contrast, money spent on regional and social funds is "minute," and the preempting of resources by farm spending prevents a re-order-ing of priorities.

It concedes that a long-term solution is proposed by the end of the year, but says: "It is hard to believe that this time our EEC partners really want reform, particularly when they even refused Britain the right to exercise a velo on changes in farm prices—a veto which had been guaranteed us when we joined the Community,

### BL firemen fail in jobs appeal

EIGHT BL firemen who were sacked after allegations that to win their lobs back An internal appeals tributal ruled that the dismissals must claud despite representations from a full-time

union official. The firemen, members of the Transport and General Workers' Union, were sacked from the Land Rover plant in Solibull, West Midlands, after a spot check earlier this month.

A Land Rover spokesman said: "The men were dismissed for conduct considered to be in breach of duty."

### Health service union leaders lingering on. A number of conbelieve the dispute must be sultants have told us that the brought to a head as soon as longer it lasts the more diffipossible, but the meeting of the cult it will be to repair the damage-so we want to bring it Nupe will back a move from

the Association of Scientific Technical and Managerial Stuffs to call on the TUC for a 24-hour general strike on September 15. ASTMS will put the plan to the health services committee.

Nupe is also considering an Employment Secretary, said yes claim in any way possible.

## Postal workers' leaders face secret ballots

BY DAVID GOODHART, LABOUR STAFF

THE POSTAL workers' union men's union (FBU) and the THE LIVERPOOL Port Emhas changed its rules to ensure. Civil and Public Services Assoployers' Association will meet the Mersey Docks shop stewards that all full-time officers of the ciation. All three are left-led union, including the general and the issue in many other today in an attempt to stop a possible vote for strike action at secretary, face a computeory unions has created an unusual election every five years by alliance union between left-secret branch ballot. wingers and trade union rea mass meeting of the Mersey's 2,500 dockers tomorrow. The

Shop stewards have deferred a decision on their recommendation to the meeting until after they have met the employers. Negotiations on pay and productivity between the employers and the Transport and General Workers Union have lasted for three months with little sign of

agreement. The employers have insisted throughout that, in return for a pay increase (believed to be £9 a week), there must be stringent changes in working practices. These involve reducing the size of gangs in certain areas and stretching gangs in other sec-

to further redundancies in a port which has already shed 1,000 dockers' jobs.

tions.

change was agreed at the Union of Communica-tion Workers' rules revision also emphasises the importance conference by 90, 730 votes to 73, 620 this weekend. The rule of secret postal ballots which is seldom backed by union leftwingers seeking greater accountaffects only newly-elected officers and does not apply to ability for union afficials. The the union's 13 full-time officers right-led Amalgamated Union of who have been elected for life. both the general secretary and The vote was carried against all senior officials by secret ballot and the electrician's

the wishes of the national evecutive. Support for the move, backed by the left has been building up over a number of years. The executive will now put proposals for a revised contract of employment for officers before the next annual confer-

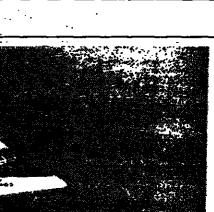
elects its general secretary by postal ballot. Another rule-change backed by the left in the UCW which would have allowed local branches to take industrial action without permission from The election rule has also the national executive was been adopted by the building defeated by 100,012 votes to workers' union (Ucatt), the fire- 71,810.

formers in the Government.

The Government, however,

Engineering Workers elects

union (EPTU), also right-led,





# **SHORTS WIDE-BODIED** REGIONAL AIRLINERS ARE READY **FOR THE 1980s**

It took the world's oldest and one of the most experienced airplane manufacturers to build wide-bodied generation Commuterliners. In every aspect the Shorts 330 and 360 are designed for efficiency, and the 330 is already well proven in airline service having carried over eight million fare-paying passengers to date whilst the 360 benefits greatly from its established heritage and will enter airline service in late 1982.

They are built with simple and functional, highly reliable philosophies in mind. They are equipped with quiet, fuel-efficient engines. And they have the most advanced flight deck equipment to be found on a comparable aircraft.

The 330 and 360 provide outstanding comfort and appeal for up to 30 and 36 passengers respectively. With these facilities, commuter passengers, and the airline operators, have the widest choice of reliable. fuel efficient, wide-bodied regional airliners in the world.

# **BUSINESSMAN'S DIARY** UK TRADE FAIRS AND EXHIBITIONS

Date	Title
Current	Motor Cycle Show (01-385 1200) (until Aug 30)
Sept 5-8	International Hardware Trades Fair (0727 63213)
Sept 5-9	International Watch, Jewellery, and Silver Trades Fair (01-643 8040)
Sept 5-12	International Air Show (01-839 3231)
Sept 7-10	Label, Labelling, Marking and Identification Industry Exhibition—LABELEX (01-467 7728)
Sept 7-10	International Carpet Fair (021-705 6707)
Sept 12-16	International Woodworking Industries Exhibition —IWIE (01-486 1951)
Sept 12-15	MAB International Menswear Fair (0727 63213)
Sept 13-18	International Boat Show (0703 32348)
Sept 14-16	Coil Winding International '82 (0202 891339)
Sept 19-21	National Bakers' Buying Fair (01-446 2411)
Sept 21-23	Harrogate Fashion Fair (01-637 2400)
Sept 21-23	Environmental Health Exhibition and Congress (01-637 2400)  British Footwear Fair (01-739 2071)
Sept 26-28	British Footwear Fair (01-739 2071)
Sept 26-29	Fashion Shoes Exhibition (0462 50383)
Sept 27-29	Construction Industry International Exhibition and Conference (01-242 3771)
Sept 27-Oct 1	Furnaces, Refractories, Heat Treatment and Fuel Economy Exhibition (0737 68611)
Sept 28-Oct 1	London Business Show (01-647 1001)
Oct 5-7	Scotland's Gift and Craft Trade Fair SCOTFAIR 82 (031343 1911)
OVEDSE	AC TO A DE TEATO C ANTO

Venue Earls Court Olympia

same per碱.

and large hotels.

Earls Court Farnborough NEC. Birmingham

NEC. Birmingham Earls Court Wembley Conference Centre Harrogate

days in other large inland

English towns increased from

solicit mid-week and long week-

trate the growth of the short-

away from home) by Britons in

England rose from 56m in 1979

to 58m last year but the total

number of nights spent away

Another disadvantage British

resorts have a long way to go

facility in most medium sized

Many hotels and guest houses

Moreover, many of these holi-

11 per cent to 12 per cent.

Scarborougi Olympia Kensington Close Hotel Imperial College, London

NEC, Birmingham Barbican

Edinburzh

Utrecht

Houston

Helsinki

Grosvenor House, W1

Mount Royal Hotel, London

Royal Horseguards Hotel, Ldn

Hyatt Carlton Hotel, SW1

Palace Hotel, Lucerne

Mount Royal Hotel, W1

London Press Centre, EC4

Dragonara Hotel, Bristol

Plasterers' Hall, London

Savoy Hotel, WC2

Loughborough

Tara Hotel, W8

UVERSEAS TRADE FAIRS AND Aug 27-29 ....... International Men's Wear and International Jeans

Aug 2S-Sept 1 International Autumn Fair (01-734 0543)

Aug 30-31 Fashion Samples Fair—INTERCHIC (01-749 3061)

Aug 30-Sept 2 Indro-Perfumery Exhibition (01-486 1951)

Sept 4-7 Women's Ready-to-Wear Clothing Show (Paris (1) 268-08-40) ...... International Shipbuilding, Marine. Small Ships and Fishing Exhibition (021-705 6707) International Public Works Congress and Equip-

Sept 1418 ...... International Exhibition for Auto, Motor Car Workshop, Service Station and Garage Equipment (01-734 0543) International Autumn Fair (01-486 1951)

International Autumn Fair (01-486 1951)

International Sports Equipment and Leisure Goods
Exhibition—SPOREX—ASIA (01-681 7688)

International Exhibition and Conference for the
Pharmaceutical, Cosmetics, Toiletry and Allied
Industries—INTERPHEX (021 384 3384)

Hardware Trade Fair (01-439 3964)

International Petroleum Exhibition and Conference

Sept 26-29 Hardware Trade Fair (01-438 3504)
Sept 28-30 International Petroleum Exhibition and Conference
OEPC (01-876 2700)
Sept 30-Oct 7 International Mechanical Handling Equipment Exhibition—INVIA (01-486 1951)

New York

**BUSINESS AND MANAGEMENT CONFERENCES** 

Management Training Consultants: Techniques of supervisory and management training for trainers (0533 27062) Oyez/IBC: Deep water pipeline technology (01-242

2481)

Management Centre Europe: Developing high performance teams (02 219 03 90)

Aerospace enters a new era Conference: Aerospace enters a new era (01-621 1355)

Ottensooser: Tax planning — New Opportunities for the Professions (01-499 8281) Aug 31-Sept 2 ... FT Frost and Sullivan: Data communications advanced concepts and systems (01486 8377)

Industrial Relations Services: Law for personnel

relations and works managers industrial (01-328 4751)
Centre for Extension Studies: Contingency planning for bomb, arson and kiduapping threats 

for the Future (061-834 8457) ..... Concrete Society: International symposium on con-Sept 13-15 ..... crete roads (01-235 6661) Frost and Sullivan: Understanding and using CAD/ CAM (01-486 S377) Sept 13-15 ...... FT Conference: World Financial Futures (01-621 1355)
IPS: Currencies—Acquiring the Know-How (0990)

Rate

23711)

Bath University: Technology and product licensing for small and medium-sized firms (0225 61244) Institute of Directors: The London International Sept 17 ...... Financial Futures Exchange (LIFFE) (01-839 Sept 21 ..... Hoare Govett: Financial futures seminar (01-353

MTC: The skills of interviewing (0533 27062) ..... Sept 21-22 al Bulletin Congresses: Inter-Aluminium Congress (01-330 4311) International Lloyd's of London Press: Charter-parties (01-353 Sept 21-22 1000)
Energy and Engineering: the market for engineering equipment systems and services for offshore structures (01-439 9021)
Goodfellow Associates: Management of Diving Costs
In the Sos (0224 20265)

Sept 28 .....

Albany Hotel, Glasgow

London Press Centre

Pall Mall, SW1.

Leicester

Monte Carlo

Anyone wishing to attend any of the above events is advised to telephone the organisers ensure that there has been no change in the details published.

Loan Guarantee Business **EXHIBITIONS** Frankfurt

the UK.

port Centre.
It says traffic carried on in

Traffic to and from the open

Call for drug prices inquiry

Treaty of Rome rules on fair

for selling medicines without product licence.

John Town, of Harrogate, had imported drugs which had been exported by British and trans national drug companies, and was able to sell them more cheaply than if he had bought them normally in Britain.

# Slump in cavity wall insulation

ORDER BOOKS of cavity wall insulation companies have says that there is no medical slumped by as much as 75 per evidence of long term health hazards from using UF-foam cent. At least two companies have gone out of business and hyde vapour bas escaped into others are seriously threatened with extinction following a fect in a building, the problem television news report on has been easily rectified. allegations of possible health hazards arising from the use of urea-formaldehyde foam.

Companies using urea-formaldehyde foam for cavity wall hyde vapour from household insulation say that they have and consumer goods, such as been inundated with calls from cigarettes, bread and hair worried householders cancel-sprays, than from the UF-foam ling orders following a report in the cavity wall. broadcast on ITN's News at Ten

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what it claims are scare stories use of the product for home about a product which is insulation in the U.S. The so bad that instead of running covered by Building Regula- National Cavity Insulation Assoten (two man) teams of intions and by the British Stan-dards Institute Companies say arisen in the U.S. largely be-that UF-foam has also been cause UF-foam has been Cosywall has also taken over UF-foam has also been accepted by the Building Research Establishment and the Government as suitable for use in soundly built premises of the appropriate construction as houses with inner walls built of brick or concrete

The National Cavity Insula-on Association—which recently has been receiving up to 50 telephone calls a day from concerned home-owners—says that UF-foam, can, in very few cases, give off an unpleasant smell which might irritate the eyes or respiratory tracts of some individuals.

and that where urea-formaldethe air, usually because of a de-

The Association said that recent checks on homes with UFfoam insulation had shown higher readings of formalde-

Nonetheless, fears about the use of UF-foam remain, particu-The industry is incensed at larly following a ban on the installed in unsuitable buildings -particularly timber frame homes which are susceptible to penetration by formaldehyde

> There have also been reports of problems with some UF-foam insulated buildings in the UK. The association however, stresses that genuine problems extremely rare and are usually encountered because the foam has either been installed improperly or in an unsuitable or defective buildings and that these cases have not resulted in long term health hazards.

No matter what the facts are.

The Association, however, there is no doubting the serious around 35 two-man teams of says that there is no medical damage that has been done to installers in England and the industry as a result of a Wales. Currently we have 15 series of newspaper and tele- crews and this number may fall vision reports on the use of UF- further unless business imfoam in cavity wall insulation. proves shortly."

> Mr David Porter, managing director of Cosywall Limited, said that in the seven weeks since the ITN broadcast, orders for cavity wall insulation had fallen from around £20,000 to £25,000 a week to just £3,000 a

'Mr Porter said that he would be able to survive because of his other business interests in stone cladding and in woodworm, dry rot and dampness treatment. He intended to remain in cavity wall insulation but said that business had got

Cosywall has also taken over the commitments of the Huntingdon based Foamalon insulation company which recently ceased trading because of a sharp drop in business.

Mr. David Cameron, chairman and 60 per cent owner of Megafoam Limited said that normally at this time of the year his company would hope to be achieving around 150 orders week. Before July the company had been achieving around 80 orders a week. In the past four or five weeks orders had been averaging just 23 a week. Mr Cameron said: "This time

Mr Cameron said that sales of other home insulation products, unconnected with UF had been adversely foam. affected by the recent publicity. "We run a fibre glass insulation business and orders here are also down by 75 per cent. I know of at least one polystyrene injection company which has gone bust because of the lack of home insulation

Mr Ken Johnson, managing director of Warmawall, which installs a wide range of insulation products in the domestic market, said that orders at his company had fallen by about 45 per cent in the past two onths, across the whole range of the company's products.

orders," said Mr Cameron.

Mr John Baker of John Baker Insulation said that turnover at his company was now running at around £200,000 a year compared with £800,000 in 1981. He said that there had been a sharp drop in orders during the past five weeks.

Mr. Baker, who is also chair man of the National Cavity Insulation Association, said "The industry will survive. It has had these setbacks before: but there is no doubt that some companies are seriously under

ANDREW TAYLOR

### **UK CONTRACTS**

# New housebuilder wins major project

A COMPANY formed five months ago to build homes for sale will start soon on an £81m development. A 20-acre site is to be developed by JOHN WILMOTT HOMES. Houses will be built at Barford Road. Eynesbury, St Neots. Hunts. creating a series of village hamlets, each with about 50 to 60 houses. They will be especially suitable for first time buyers, and couples with young families with prices ranging from £17,750 to £26,000.

There is outline planning permission for homes on the site. which the company is developing in association with R. H. Wales, of Gamlingay. Talks will hegin soon with the local planning authorities about details of the 1, 2 and 3 bedroomed houses. The St Neots site is about three-quarters of a mile from the town centre, close to two schools and a parade of local Work should begin in October 1982, with the first house ready about five months later. John Wilmott Romes is part of the John Wilmott Group

BOUYANT IN the north east is the BOWEY GROUP which reports general and housebuilding work totalling £8m.

Shefford, Beds.

Leading the projects awarded to the general building side is a conversion and upgrading office accommodation scheme at Tan-field Lea for Ever Ready (GB). Other work covers sheltered housing developments at Alnwick for the Royal British Legion Housing Association, refurbish-ment in Newcastle upon Tyne for Greater London Properties, a

petrol station also in Newcastle, awarded to TARMAC regions Housing deals are worth over 56m on five sites released by local authorities in Newcastle Gateshead and North Tyneside, out by Cubitts. It is for studies

including 170 first-time buyers to be built at Wallsend in a housing exchange for land scheme with North Tyneside Metropolitan DC. MOWLEN'S E. THOMAS &

COMPANY of Ponsanooth, Truro and Newton Abbot, is forecasting another successful year with the announcement of £8m worth of new business.

The largest project at £4m is for the construction of all sub-ways, culverts and retaining walls along the 4 km of two-lane carriageway being built by Mowlem between Marsh Mills and Manadon on the A38.

Othe major schemes include a PSA £1.3m contract for the construction of a reinforced concrete pumphouse at Falmouth new housing at Penzance and hospital work at Truro.

CONTRACTS VALUED at £4.8m have been awarded to companies in the CARTWRIGHT GROUP, comprising four housing con tracts, in both the private and public sectors, and a pumping station project on the River Wye. The latter involves construction by Davies Middleton & Davies, Cardiff, for the Welsh Water Authority of a pumplog station and water abstraction plant on the River Wye at Mon-mouth, Gwent (value £1.38m). DMD has also won a £337,000 Phase 1 contract for the Avon

new headquarters at Portisbead, near Bristol. Hayward & Wooster, Bath, has gained two housing projects and has also won Phase III of the SCHWEPPES has awarded con-Bath City Council's Whiteways Housing Development, which is

valued at over £600,000. Cartwright Construction has won housing projects from both the Leeds City Council and Kirklees Metropolitan Council.

new Bartlays Bank in Gramling FOUR CONTRACTS, together ton Town Centre and a Mobil Oil worth nearly film, have been construction. companies: largest, worth more than £1.5m. is in Scotland and will be carried and offices, at Clydebank Business Park, for Radio Clyde-Glasgow-based commercial radio

station. Work on the two-storey building has started, for completion in 14 months. Two contracts have also been awarded to Cubitts on Mersey-side. At Crank, St Helens, the company has a £570,000 contract for alterations and extensions to a private hospital, for Gus Pilkington Memorial Hospital

for Greggs of Manchester, will cost £324.000. In the north-east, Tarmac has £444,000 contract for road and bridge construction work at Washington, Tyne and Wear, for Washington Development Cor poration.

and at Clayton, Manchester

extensions to an existing bakery

THREE TURRIFF CONSTRUCTION are worth a total of £2m. One is awarded by the City of New-castle upon Type for the modernisation of houses at Blakelaw, another by Notting-ham CC for the modernisation of 84 houses on the Bulwell Hall Estate, and the third is for the City of Birmingham DC for similar work on 399 dwellings at Handsworth New Road.

OSSORY ROAD Developments has awarded the main building contract of around £3m for the and Somerset Police Authority's Collonades shopping centre and new office complex in central Doneaster to FAIRCLOUGH BUILDING

> tracts worth over £2m to Newcastle-based builders P. WRELAN to build a £1.7m production, warehousing and admini-stration complex at Aylesbury and a £360,000 distribution depot at Colchester.

### **OVERSEAS CONTRACTS** the airstrip will be built away from the present airfield. It Sir Alfred McAlpine

(OVERSEAS) is to work in Nigeria for the first time in the company's history, with the company's history, with the and composed partly of an winning of a £50m award for a ECGD supported export credit health project there for the and partly of a Eurocurrency Plateau State Government, east of the new federal capital of

of a school of health technology in Jos, capital of the Plateau tract is expected to take about A.T. State, 10 hospitals each of 30 22 years to complete.

ALFRED McALPINE beds, and 50 clinics. The contract will be funded by a loan to the State, led and syndicated by the Midland Bank

credit.
Balfour Beatty Engineering is buja. the managing contractor for the Work cover the construction Plateau State Government. McAlpine says that the

Bryant construction Tailored space for businesses

### Around the industry

SOLIHULL READING

THE FIRST seminar and forum on phenotic insulation to be mounted by the trade association, the PFMA, is to be held on October 13 in Beigrave House, Bucking-ham Palace Road, London, It will be followed by a further presentation in the Hotel, Edinburgh on Novem

The seminars are intended for architects and other specifiers, fire officers and building managers concerned with energy savings and fire safety in the building, con-struction and heating and ventitating industries.

UNDAUNTED BY the reces sion, Shoreo Trench Systems is continuing to expand its business on a number of fronts with the acquisition of Sling and Tackle (the northern based producer of nylong slings, lifting chalus and specialist beam pulleys), new factory and offices spafor laser company Spectra Alignment and, in France, has formed Le Hydraulique to sell or hire its traditional range of trench support systems in France. Belgium, th eNetherlands and Switzerland.

A TOTAL of 32 students have passed the 1982 Guild of Architectural Ironmongers third year examination to qualify for a Dip GAL Five prizewinners this year receive cash awards including number one winner Mr George Robinson, Mac-George Robinson, Mac-naughton Blair, Belfust, who won the gold medal and a £50 cash prize.

TERRAPIN has created a new subsidiary company. Bond Estates, to manager and develop the group's 22 acre Milton Keynes freehold site. Two major developments planned over the next two years will involve £14m.

THIS YEAR'S London Building and Construction Show which opens is a three-day event, opens on September 21 at the Bloomsbury Crest Hotel, Russell Square, W.C.1.

# Falklands airstrip: learning from the past

last year we were running

REPORTS that the Government is considering a new 11,000 ft the Falkland Islands has revived memories of the building of the present Port Stanley airfield by John-ston Construction in 1975.

Johnston Construction, part of the Reigate based Johnston the engineering, building materials and contracting company, had the benefit of building the existing Port Stanley airfield when more peaceful relations existed between Britain and Argentina.

None the less the company still had to resolve the problems of building a 4,000 ft asphalt run-way, airport terminal facilities and a 5 km road in a windswept and remote part of the South Atlantic more than 8,000 miles away from Britain.

"It took us six months just

type aircraft.

Impregnation

Flagged gutter

reach:

Day-beaconing paint

Jet engine exhaust screen

will be taken into consideration.

months, including rainy seasons.

proposal covering the entire job.

B.P. 7004

number of the mailing.

(Haute-Volta).

the following: Alternative embankings

Laterite for foundation layer Laterite cement for base layer

Laterite for jet engine exhaust belts

Bituminous concrete for running layer

Micro bicuminous concrete for jet engine exhaust belt

REPUBLIQUE DE

HAUTE-VOLTA

Unite-Travail-Justice

MINISTERE DES TRAVAUX PUBLICS.

DES TRANSPORTS ET DE

L'URBANISME

DIRECTION GENERALE DES TRAVAUX PUBLICS

TENDER No. 02-12-TP-82

Urbanization of Haute-Volta is issuing an open call for bids to carry out improvement works to the traffic areas of BOBO-

DIOULASSO Airport, in order to make it accessible for DC-8

II. QUANTITIES: main quantities concerning this tender are

III. ALTERNATIVES: no other alternative submitted by bidders

IV. COMPLETION TIME: maximum completion time is 24

Y. ELIGIBILITY: this cender is open to any individual or legal

YII. SUBMISSION OF BIDS — OPENING OF ENVELOPES:

proposals, in sealed envelopes, should be submitted in French and in triplicate, according to the "Model of Bid" and the "Model of Prefinancing Proposal" of the Tender file, and should

Monsieur le Directeur Général des Travaux Publics

QUAGADOUGOU (République de Haute-Volta)

In case of transmittal by registered mail, the bidder should inform Monsier le Directeur Général des Travaux Publics by

telex (No. 5324-UV or 5282-UV), indicating the reference

The envelopes will be opened at a public session on Thursday 2 December 1982 at 9 a.m. GMT, in the Conference Room of

the Ministry of Public Works, Transportation and Urbanization (Sangoulé LAMIZANA Building), OUAGADOUGOU.

VIII. COMMITMENT PERIOD: bidders will be bound by their

proposal for a period of 4 months as from the deadline set for

the submission of bids.

IX. CONSULTATION OF FILES: the Tender file can be

consulted at the Direction Générale des Travaux Publics (Sangoulé LAMIZANA Building) in OUAGADOUGOU

X. PURCHASE OF FILES: the files can be acquired from the Direction Générale de l'ASECNA în DAKAR, 32 Avenue Jean-Jaures, B.P. 3144, DAKAR (Senegal) for a price of 100,000 (one

hundred thousand) CFA francs payable by cheque made out in the name of the ASECNA accounts agent.

XI. ADDITIONAL INFORMATION: interested parties can

Monsier le Directeur Général des Travaux Publics

Boite Postale 7004 OUAGADOUGOU (République de Haute-Volta)."

QUAGADOUGOU. June 17, 1982.

XII. POST SCRIPTUM; bidders are advised that a similar call for bids (also for the BOBO DIOULASSOU airport) will be

issued early in 1983 for the construction works of an airport

terminal, a technical centre, the construction of a concrete fence

and for the supply and installation of technical equipment and

obtain all additional information and details from:

the construction of several buildings to house it.

before TUESDAY 30 NOVEMBER 1982, 5 p.m. GMT.

entity offering the required technical and financial capabilities. VI. PREFINANCING: together with these guarantees, the bidders are invited to include with their bid a prefinancing

OBJECT: The Minister of Public Works, Transportation and

supplies and materials we would need for an 1S month plans to build the new airstrip building contract. We even go ahead, took our own coal to fire the Johnston also used some temporary homes shipped out

managing director of Johnston "Sailings to the Falklands Britain. then took place about every three months, so it was no good thinking of nipping back London for anything that had been forgotten, Smaller components, however, could be

flown out if necessary." imported into the Falklands by the company were cement and King. bitumen for the runway and the road connecting the airfield with the town of Port Stanley. Both materials, building essential. absolutely

7.500m<sup>3</sup>

40.300m<sup>2</sup>

100 metres

7\_500m<sup>2</sup>

7,000 T

900m<sup>3</sup>

Argentine labour to complete to house the construction the £5.4m contract. Some of the team," says Mr Martin King, Falkland islanders also worked on the project, together with a team of about 40 sent out from

"The Falklanders were a useful addition to our team and proved very resourceful with machinery and plant which had broken down in some of the arduous conditions we had to own out if necessary." deal with. We never lost a The only other materials single day's work throughout the entire project," says Mr

The nearest we get in the British Isles to conditions on King. the Falklands would be in the to prepare all the equipment, imported from Argentina. This construction but it can be very military now in the process of

could be a major headache if upleasant. It is very windy and when it rains it is coming at you almost horizontalally. "All the stone we needed was

quarried locally on the Falklands and as the local rock was pure quartzite, the wear and tear on machinery was phenomenal: but with the able assistance of some of the Falklanders and our own engineers we were always able to keep things going.

Ground conditions also very difficult and we had to dig out a lot of peat, which can become waterlogged, and other unsuitable materials before filling in with stone and sand and placing the runway on top of the infill material," said Mr

Johnston's experience of con-Orkneys and the Shetlands. The ditions on the Falklands has weather is not impossible for already proved useful to the

extending the existing war damaged Port Stanley airstrip from 4,000 to 6,000 ft.

If plans for a new runway go ahead—and a survey of possible sites is already underway—it seems likely that that would have to be large enough to accommodate a wide range of modern aircraft, to make the islands more independent of the South American mainland. Johnston would clearly like

to have a second bite at the cherry if the new airstrip is built. "We would obviously like to assist in any rebuilding project on the Falklands. We have very many happy memories of our time there," happy says Mr King, "it was rather a unique experience."

# KINGDOM OF MOROCCO

### KINGDOM OF MOROCCO

OFFICE NATIONAL DE L'EAU POTABLE CALL FOR TENDER No. 4/D/SP/82

RECRUITMENT OF CONSULTANT IN THE FIELD OF DRINKING WATER

Within the framework of the 3rd Drinking Water project, financed by (IBRD) the Office National de l'Eau Potable (ONEP) wishes to crecruit the services of six consultants in the field of Drinking Water, specialised in the following

(1) Exploitation and Management in the field of Drinking Water (1 position)

(2) Planification and Feasibility Study (1 position) (3) Détailed Technical Studies and Consultations (1

position)

(5) Professional training in the field of Water Technique (1 position)

(6) Analytics Accountancy (1 position)

concerned on request.

this address by Wednesday, 21st Sepembler, 1982, at the latest. The present call for Tender concerns the countries which are members of "IBRD" and Switzerland.

# CONTRACTS AND TENDERS

MINISTRY FOR ENERGY AND

NATIONAL DRILLING COMPANY

NOTICE OF INTERNATIONAL CALL FOR TENDERS No. IN 19.82

"ENAFOR" is launching an International Call for Tenders

25 No. HEAVY TANKER-TYPE VEHICLES This Call for Tenders is aimed solely at manufacturing

panies and other interhediaries, in accordance with the provisions of Law No. 78.02 dated 11 February 1978 providing State monopoly for Foreign Trade.

Interested suppliers may obtain Specifications from ENAFOR—Department Engineering and Approvisionnements—1, Place Bir Hakeim, El-Biar (Alger) with effect

envelope, the outer envelope bearing no name, initials, captions, logo (etc.), of the tenderer and bearing no inscription indicating its origin, but solely the mention "APPEL D'OFFRES INTERNATIONAL NO. IN 19.82—CONFIDENTIEL—A NE PAS OUVRIR" (INTERNATIONAL CALL FOR TENDERS No. IN 19.82—CONFIDENTIAL—DO NO OPEN), addressed to "Monsieur le Chef de Departement Engineering and Approvisionne-ments" (Head of Engineering and Supplies Department), should arrive by 9 October 1982 at the very latest. Any offer received after this date will be rejected.

### ELECTRIC POWER HEDIUFF NEW 11kY SUBSTATION The Public Corporation for Electric Power Invite tenders for the following contract which is being financed by the Corporation.

before 6 p.m.

PEOPLES DEMOCRATIC

REPUBLIC OF YEMEN

PUBLIC CORPORATION FOR

Hedjuff New 11kV Substation Agen
—Contract 20150-01 Tenders are layled for this Contract. On a turniev basis for the
fract. On a turniev basis for the
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fraction and the coulding
for the construction in supering transport
to size, erection, commissioning and
surantee for 24 months.

The Contract will include the
following plant—

Eighteen Panel — 11kV switchboard,
110V dc battery-charger system, 11kV
neutral earthing coupment ifor easting 2.5 act of 5 Turbine generators
and 1132kV 15 MVA transformers,
dc and 415V ac switchboard, air
conditioning/ventilation plant and assocated control, protection and alarm
copyment control, protection and alarm
copyment for the following the following the
first alarm and the prenches and
trays, along with associated divisioners.

The commissioning data cheduled for March 1984, The Specification documents may be bisined on or after 28th August 1982 Proces Cardew & Rider, Paston House, 165/167 Preston Road, Brighton, Sussex, BN1 5AF, England (Ref WSN-20150)12 the Consulting Engineers to the Public Congratation for Electric Power for this project.

The Executive Chairman. Public Comporation for Electric Power, Nectrum. Aden. Popoles Demo-trais Republic of Yemen. Application should be accompanied by a chemon control of the chemon should be companied to the chemon should be sh

A brief description of works is immediately obtainable from Preece. Cardew & Rider at the above address.

### ART GALLERIES

GALERIE GEORGE offers unique inerta-ment confortunites with Carerie George Collectors Pan (with interest tree credit). EXHIBITION of Fine English and Conti-nental Paintness and Watercolours 1820-1920. 96-98. George St. VII. LEFEVRE GALLERY, 3D. Bruton St. WI. 01-493 1572-3. XX CENTURY WORKS OF ART. Mgg. Fri. 10-5. WHITECHAPEL ART GALLERY, E1. 377 0107. Tube Aldosh Last. To Sept. 51R CHRISTOPHER WREN. Sun.-Frt. 11-5.50. Thurs. to 7.50. (1. Sat. & 29 & 30 Aug. Admission £1 (50p) free Children & Moc. days 2-5.50.

# **CLUBS**

OFFICE NATIONAL DE L'EAU POTABLE

CALL FOR TENDER No 26/DE/82

SUPPLY OF DRINKING WATER TO THE

TOWN OF AL HOCEIMA AND AREA

"The Office National de l'Eau Potable (ONEP)

informs the Companies wishing to participate in

the International call for the above mentioned

tender that the closing date for submitting the

bids, previously set for 28th July 1982 has been

extended to Wednesday 29th September 1982,

THE GASLIGHT OF ST. JAMES'S, London's most excelling businessemen's signific curo no most excelling businessemen's signific curo no momentary meeted. 2 bars, dozens of danceable commanions, intriguing Caparet Acts. Happy hour 8-9 pm Il rechired superb three-course disneer, only 59.75, plus sorvice and Lat Entrance ree 57.75, plus per sorvice and Lat Entrance ree 57.75, plus per sorvice and Lat Entrance ree 57.75, plus per sorvice and Late and EVE has outlined the others because of a policy of law play and value tormoney Supper from 10-3:20 am. Disco and too musicams. Blantorous hosterage, caching floorances. 189. Regent St. 01-734 055

PERSONAL

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### **EQUIPMENT FOR SMALLHOLDER** SUGAR DEVELOPMENT

Windrower to remove cane trash
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Fettiliser Spreader — Tractor mounted
30 gallon boiler for cooking food (electric)
Workshop equipment
Sugar cane haulage trailers
21, 3 tonne Lorry with 6 metre dropside body
Motor Cycle between 100 and 200 cc canecity

Quotes to be C & F Mazabuke.
Quotes to be net of import duty and sales tex.
Quotes to be velid for 60 days from the tender opening date.
Full specifications of equipment offered should be included with

4. Full specifications or equipment of the tender.
5. Hems starred have supplementary descriptions which may be obtained on application to the Company. Telex: ZA 42860.
6. Delivery dates should be stated.
7. Payment will be by sight Latter of Credit.
8. Tenders should be addressed to:

Tenders will close at 09.30 hours on 14th October 1982. Tenders will be opened at 10.00 hours on 14th October 1982 at the Company Offices, Mazabuke. Telexed tenders will be accepted but must be confirmed in

For the supply of 
- MINING EQUIPMENTS 
- METALLURGICAL PLANTS Nº 82/6 - 82/7 - 82/8

To endeavour to ensure they will have at their disposal applications to tender which best meet the industrial requirements of the Gacamines Department, the latter has decided to positione the deadline for receipt of applications in respect of the above-mentioned contracts from 20th September 1982 to 11 a.m. of 18th October 1982 (Lubumbashi local time), at the very latest.

Tenders will be opened at a public session, to be held at 2 p.m. on 18th October (local time), at the Contenence Room of the Delegation Genérale de la GCM, Boulevard Kamanyola, zone de Lubumbashi. In connection with the above, Gecamines will organize briefing sessions and visits to sites in Lubumbashi and Litest, between 23rd August and 27th August and/or between 6th September and 10th September 1982 for firms which intend to submit tenders.

THE RATE IS £27.50

### ADVERTISING APPEARS EVERY MONDAY

per single column centimetre

(4) Studies of large capacity Supplies (1 position)

### ROLE OF CONSULTANTS

The task of the consultants is to help the members of ONEP by their active participation to solve technical and organisational problems, regarding the above mentioned fields. The task is defined with more details in the schedule: "Cahier des Charges" which could be picked up from the Sales Office of l'ONEP or sent to the Parties

DURATION OF THE MISSION: 36 MONTHS PLACE OF LIVING: RABAT

The propositions of the persons concerned, presented according to the Article 3 of the Schedule: "Cahier des Charges" will be sent to Mr le Directeur Général de l'ONEP, B. P. RABAT CHELLAH, and will have to reach

Tenders are invited for the supply of the following equipment to be financed by the African Development Fund. Goods must be produced in the territories of state participants or member countries:

The General Manager
KALEYA SMALLHOLDERS CORPANY LTD
PO Box 371, Mazabuka, Zambia
and marked "Tender for Equipment"

### ALGERIAN PEOPLE'S DEMOCRATIC REPUBLIC

PETROCHEMICAL INDUSTRIES

E. N. A. F. O. R.

for the supply of:

companies, accepting consortia, representatives of com-panies and other intermediaries, in accordance with the

from the date of publication of this notice. Offers, in sextuplicate, in a sealed and registered double

The selection will be made within 120 days with effect from the closing date of the Call for Tenders.

### INTERNATIONAL NOTICE OF CALL FOR TENDERS

Issued by the REPUBLIC OF ZAIRE
(La Générale des Centières et des Mines - GECAMINES)
for a project which may be insanced by the European Economic
Community, European Development Fund, pursuant to Title III Mineral products - of the Second Lome Convention (SYSMIN).

# **CONTRACTS & TENDERS**

### BBC 1

6.40-7.55 aur Open University (Ultra High Frequency only). 9.20 Scooby and Scrappy Doo. 9.40 Jackanory 9.55 The Wombles 10.00 Take Hart 10.20-10.30 Play Chess. 1.00 pm News After Noon. 1.30-1.45 Postman Pat. 3.40 Home On Sunday. 4.18 Regional News for England (except London) 4.20 Play 4.45 Heyyy, It's The King. 4.55 John Craven's Newsround. 5.05 Ticket to Ride. 5.35 The Perishers.

3.40 News.

6.00 Regional News Magazines. 6.25 Best of the West - the Wild West as it really

wasn t. 6.45 Comic Roots: Paul Shape's

Rotherham. 7.20 Star Trek starring William Shatner and Leonard

Nimoy. 8.10 Panorama: Searching for the New Zimbabwe.

9.00 News. 9.25 Play of the Month: "The Critic," a satire starring Hywel Bennett, Norman Rodway and Nigel Haw-

11.13 News Headlines. 11.15 BA In Music: "The gurris" with B. A. Robertson.

11.45 Cycling: The World Championships from Leicester.

ANGLIA

9 35 am European Folk Tales 9.45
The Adventures of Niko. 10.15 The Galway Wav. 11.10 North Ses Sega 11.50 Capitan Namo. 1.20 pm Anglia News 1.30 Monday Film Mattines. "Lost Horizon." 4.00 Caroonnime. 5.16 Here's Boomer 6.15 Stagray. 8.30 Happy Days. 10.28 Channel Late News. 11.20 Aujourd'hu en Franca. 12.20 am News and Weether. 12 in French. 4.99 Here Here. 6.00 About Anglia, 8.30 Benson 11.20 Musical Special. 12.25 am Thoughts from Dunwich.

BORDFP

9.30 am European Folk Tales 9.45
Channel Lunchtime News. What's On Where and Wearher. 1,30 The Monday Mattines. "Lost Horizon." 4.00 Cartoonnime. 5.16 Here's Boomer 6.15 Stagray. 8.30 Happy Days. 10.28 Channel Late News. 11.20 am News and Weather. 12 Stagray. 12.20 am News and Weather. 12 Street. 10.36. Channel Lunchtime News. What's On Where and Weather. 1,30 The Monday Mattines." Lost Horizon." 4.00 Cartoonnime. 5.16 Here's Boomer 6.15 Stagray. 8.30 Happy Days. 10.28 Channel Late News. 11.20 Aujourd'hu en Franca. 12.20 am News and Weather. 12 Stagray. 8.30 Happy Days. 10.28 Channel Late News. 11.20 Aujourd'hu en Franca. 12.20 am News and Weather. 12 Stagray. 13.00 Limitation 1.20 pm News. 11.20 Aujourd'hu en Franca. 12.20 am News and Weather. 12 Mattines. 12.20 am News. 11.20 Aujourd'hu en Franca. 12.20 am News and Weather. 12 Mattines. 12.20 am News. 11.20 Aujourd'hu en Franca. 1

Metunes: "Living Free." 1.20 pm North News. 1.30 Monday Matinee: "Lost Horizon," starring Peter Finch. 4.00 Cartoon, 5.15 The Electric Theatra Show. 6.00 Summer at Six. 8.35 Close Encounters. 1.20 Top Rank Fights of the 70's, 12.25 am North Headlines. 9-30 am Wonders of the Underwater World. 9.55 Vicky The Viking. 10.15 Untamed World. 10.40 The Flying Kiwi. 11.00 Sesame Street. 1.20 pm Border News. 1.30 Film: "The Inn of the Sixth Happiness." sterning Ingrid Bergmen and Robert Donat. 5.15 Private Benjamin. 8.00 Locksround Monday. 6.15 The Sound of . . . Ricki Lee. 6.30 Try For Ten. 12.20 am Border News Summary. 9.30 am Wonder of the Underwater World. 9.50 Sport Billy. 10.15 Untermed World. 10.35 The Flying Kiwi. 11.00 Sesame Street. 1.20 pm Granada Reports. 1.30 Exchange Flegs Promenades. 2.00 About Britain. 2.30 Monday Matines; John Mills in: "The October Man." 5.15 The Two of Us 6.00 Diffrent Strokes. 8.30 Granada Reports News. 6.35 The Summer Show. 11.20 Nana Mouskouri in Concert.

CENTRAL

9.45 am The Galway Way. 10.45 Balley's Bird 11.10, Venture. 11.35 Staggay. 1.20 pm Central News. 1.30 The Washington Trail, 12.00 The Mon-day Screen Matings. A Tale of Two Cities." Starring Dirk Bogarde and Dororhy Tutin 5.15 Survival. 6.00 Central News 11.20 Lou Grant. 12.25

(5) Steres (when an VHF)

RADIO 1

9.55 am Beachcombers. 10.20 Kum 9.35 am Beachcombers. 10.00 Friends Kum 10.40 Clapperboard. 11.05 Vicky of My Friends. 10.35 Tarzan, 11.15 the Viking 11.30 The Greatest The Real World. 11.45 Lerry the Lamb. Thinkers. 1.20 pm HTV News. 1.30 1.20 pm TVS News. 1.30 The Enter-

TELEVISION

Tonight's Choice

television has made this version considerably more innocuous.

watching now. Hywel Bennet, Rosemary Leach and Clive Francis

profile of Ted Turner in The Man from Atlanta. Turner is revolutionising the U.S. television system by his use of satellites and

cable television: this gives us a sneak preview of what may happen

return of Star Trek to BBC 1 at 7.20. The series may be 15 years

old, each episode may have been repeated many times, but to all

true Trekkies it remains compulsive viewing.

6.40-7.55 am Open University.

+5.40 Laurel and Hardy in

"Beau Chumps."

**GRANADA** 

HTV

BBC 2

here in the next decade.

10.30-10.55 Play School.

5.10 pm Crash Course.

6.15 The Silent World. 6.25 The Philpott File.

The BBC 2 alternative at 9 to Susann and Sheridan is a

My personal choice for the evening, however, must be the

DAYID CHURCHILL

7.00 Junior Pot Black.

7.30 Best of Brass.

9.40 Cartoon Two.

9.55 Third Eve.

Y 5-4d 6.30-7.00 F 11.20-12.20 am Ser Ser.

7.25 News Summary. ...

9.00 The Man from Atlanta.

SCOTTISH

10.00 sm Target the Impossible.
10.25 Portrait of a Village. 10.50 Memories of the Thirtles. 1.20 pm Scottish News. 2.00 Action and Advanture: "North West Pessage." 6.00 Spotland Today. 6.40 Crime Desk. 11.20 Late Call. 11.25 Nero Wolfs.

TSW

TV\$

8.10 Strauss and Lehar.

RADIO

12.02 pm You and Yours. FADIO 1

5.00 am As Radio 2.7.00 Mike Read.
3.00 Simon Bates. 11.00 Tony Blackburn buth the Radio 1. Rozadshow from Bournemouth. 12.30 pm Newsbeat.
12.45 Dave Lee Travis. 2.00 Steve Wiright. 4.30 Peter Powell. 7.00 Stayin Alive. 8.00 David Jensen. 10.00-12.00 John Peel (S).
5.00 am Ray Moars (S). 7.30 Terry Moran (S). 10.00 Jimmy Young (S).
12.00 Diana Dors (S). 2.00 pm Ed Stewart (S). 4.00 David Hamilton (S).
5.45 News. Sport. 6.00 Jen Leeming (S). 1.00 pm News. 1.05 Square (S). 1.00 pm News. 1.05 Square (S). 3.00 Naw Records (S). 3.00 Naw Rec 12.27 Redio Active (S). 12.55 Weather,

### LONDON

APPOINTMENTS

senior executive, treasury office,

at MIDLAND BANK, with responsibilities for developing

policies both in London and

Other appointments within

group treasury are Mr Christopher J. Carless who

becomes a general manager's assistant, Mr Derek E. King who

currency dealing operations, in succession to Mr Wilkins and Mr Robert G. J. Holmes, formerly chief surrency deposit

dealer, who becomes senior manager, currency dealing opera-

tions in succession to Mr Carless.

Mr C. H. Winter has been

appointed to the board of WILLIAMS AND GLYN'S BANK.

He is managing director of The Royal Bank of Scotland. Both

banks are members of The Royal Bank of Scotland Group.

Mr Brian Downing, managing

currency treasury

senior executive.

foreign

overseas.

becomes

Treasury posts

Mr David J. Wilkins has been managing director for the UK appointed to the new post of operation at Stotfold.

Liaison Committee

tary of the committee.

November, when he will retire.

Mr P. M. Madders (honorary secretary, National Conference of Friendly Societies) was

elected to succeed him. Mr L. L.

Munns (secretary of the Associa

tion of Collecting Friendly Societies) was re-elected secre-

director — T. J. Brooks (Leicester), a position pre-viously held by Mr Clarke.

9.30 am Sport Billy, 9.50 Where Did The Colorado Go? Crazy World of Sport. 10.45 11.10 Little House on the Prairie. 12.00 The seamier side of Hollywood gets an airing on ITV at Cockleshell Bay. 12.10 pm Rain9 tonight with the first of a three part serialisation of Jacqueline
Susann's epic Valley of the Dolls. This is a made-for-television News plus FT Index. 1.20
version of the book and film which caused such a stir in the Thames News with Robin
1960s. However, the passage of time and the dictates of American Houston. 1.30 Britannia. 2.00 The seamier side of Hollywood gets an airing on ITV at version of the book and film which caused such a stir in the 1960s. However, the passage of time and the dictates of American Monday Matinee: Peter Finch, John Gregson, Anthony Quayle in "The Battle of the River Opposing this on BBC 1 at 9.25 is Sheridan's The Critic in the Play of the Month slot. Like the Valley of the Dolls, with its behind the scenes expose of the film industry. Sheridan's play is a comic look at the passions and the intrigue of the theatre Plate." 4.15 Dr Snuggles. 4.20 Ragdolly Anna. 4.30 Rowan's Report. 4.45 Watch All Night. world—albeit of two centuries ago. Still, it has stood the test of time well and—since it is so rarely performed—is well worth 5:15 Diff'rent Strokes.

5.45 News. 6.00 Thames News with Rita Carter and David Bellin.

6.25 Help! with Viv Taylor 6.35 Crossroads.

7.00 The Krypton Factor. 7,30 Coronation Street. 8.00 A. J. Wentworth, BA.

8.30 World In Action 9.00 Best Sellers: "Valley of the Dolls," part 1. 10.00 News. 10.30 Best Sellers: "Valley of the Dolls," part 1 (continued).

11.20 The Monte Carlo Show:

Patrick Wayne introduces
Tessie O'Shea.

12.20 am Close: Sit Up and
Listen with Barbara Leigh Hunt.

† Indicates programme in black and white.

Superstar Profile. 12.00 Monday Matines: "A Tale of Two Cities," starring Dirk Bogarde. 4.15 Cartoon. 5.15 Mr Merlin. 6.00 HTV News. 10.28 HTV News. 11.20 India. HTV Cymru/Wales—As HTV Wast except: 11.05-11.30 am Barley a Bird. 12.00-12.10 pm Dacw Mam Yn Dwad. 4.20 On Sefari. 4.45-5.15 Goglis. 6.00 Y Sedd. 6.30-7.00 Report Wales. 11.20-12.20 am Ser Ser.

TYNE TEES

9.20 am The Good Word. 9.25 North
East Naws. 9.30 Hands. 9.55 Golfing
Greats. 10.20 Cartoon Time. 10.30
Bygones. 11.40 Sessume Street. 1.20
pm. North East News and Looksround.
1.30 Deeply Regretted By. 12.30 Mondey Matioes: "The October Man,"
starring John - Mills and Joan Greenwood. 5.15 The New Fred and Barney
Show. 6.00 North East News. 8.02
Looks Famillar, 8.30 Northern Life.
10.30 North East News. 11.20 The
Russian Dance Festive! (Hosted by
Orson Welles). 12.10 am Proper Propagation.

### YORKSHIRE

9.35 am Sesame Street. 10.35 Story Hour. 17.25 Untamed World. 11.50 European Folk Tales. 1.20 pm TSW News Headlines. 1.30 Feature Film: "Lost Honzon," sterring Peter Finch and Liv Ullman. 4.00 Cartoon Time. 4.12 Gus Honeybun's Magic Birthdays. 5.16 Here's Boomer. 6.00 Today South West. 6.30 Happy Days. 10.32 TSW Lata News. 11.20 Peatecopt. 9.30 em Sesame Street. 10.30 Jason of Star Command. 10.55 World We Live in. 11.20 Rocket Robin Hood. 11.40 The Locomotion. 11.55 The Bubbles. 1.20 pm Calendar News. 1.30 Monday Matines: "Lost Horizon." 4.00 Cartoon Time 5.15 The Two of Us 6.00 Calendar (Emley Moor and Belmont editions). 6.35 Happy Days. 11.15 Journey to the Unknown. Journey to the Unknown

director of the Women's Magazines Group, is to be deputy chief executive of IPC MAGAZINES. Mr John Mellon, assistant tainers. 12.00 Monday Metines: "A Tale of Two Cities" starring Dirk Bogarde. 5.15 The Adventures of Black Beauty. 6.00 Const to Coast. 6.30 Staying Alive with Eddis McGee. 11.20 Musical Speciel: Miraille Metheurs joined by Dionne Warwick and Sache Bistel. 12.25 am Company. ZINES Mr John Mellon, assistant managing director of the Woman's Magazines Group, is to be managing director of the group. He also joins IPC Magazines' board. Mr Patrick Barnes, managing director of the Youth and Practical Group, is to be managing director of the Leisure Activities Group. Mr Michael Paton, production director of IPC Magazines, is to be managing director of the Youth and

> Mr Clive Hadley has joined the management board of STERL-NG METALS, part of the Birmid Qualcast Foundries group, as director of the iron foundry. He joined Birmid Qualcast as an apprentice in 1953, and went on to become sales director before transferring to Sterling Metals in February 1981 as sales manager

RACING

DOMINIC WIGAN

ing director of the Youth and Practical Group. The appoint-ments are from October 1.

market rival Kuwait Tower. even a semblance of a challenge. Although it materialised approaching the distance, swept off the attentions of her ago.

Piggott already had matters closest pursuers, as she swept Th THE FORT, who is not convery much under control and to a ninth success of the sidered one of Warren Place's best classic hopes by either The Font forged clear to put season, than Chapman com-Cecil or Piggott, ran out a com-three lengths between himself mented: "Soba's next race will

it is fair to suspect that the for the winner, saying: "I will form of the one-time "juvenile have to feel my way with him."

Character and the could have to feel my way with him."

Classic" could soon be changed.

Once the straight had been

While The Fort was prob- sprinter, Sharpo, and two bly surprising Cecil at adversaries from 1981, Chellas-

### **WEEKS FINANCIAL DIARY**

The following is a record of the principal business and financial engagements during the week. The board meetings are mainly for the purpose of considering dividends and official indications are not always available whether dividends concerned are interins or finals. The sub-divisions shown below are based at Midland Bank mainly on last year's timetable.

COMPANY MEETINGS— Sooth (John) (Bolton), Pembroke Halls, High Street, Walken, Worsley, Lanca-gaire, 12,00 BOARD MEETINGS— Finals: Montieligh Worthington (A. J.) Interims:

Interimis American Ind
Angle American Ind
Blagden Inds
Memec (Memory and Electronic Components)
Sharpe (W. N.)
DIVIDEND & INTEREST PAYMENTS—
Glasgow Stockholders Tat Ta. Do Speff Mr F. G. Feuton (honorary secretary, Association of Deposit Societies) will continue as chairman of the Friendly Societies Division Stockholders Tat 18. Do Speci-1.75pc Leuth: Intal Inv NV Gtd Fitty Rate Notes A 1957 534.68 May and Hassell 1.5p Treasury Zippc Index-Linked 2011 E1.26 until

TOMORROW TOMORROW

COMPANY MEETINGS—
Highgate and Job. 51. Moss Street.
Paisley. 12.30
Highgate Optical. Reg Office. 38, Jamestown Road, NW. 11.00
Investment Co., St Martins House, 18, St Martins-Le-Grand. EC. 12.00
London and Middland. Portman Hotel.
Portman Square. W. 12.00
Oif and Associated Inv Tst. Winchester House, 190. Did Broad Street. EC. 12.00
Swan Clond. Head Office. New Marz Road.
Gorgie. Editiburgh. 4.00
Finals
Aper, Properties
MrKay Securities
listerimst
American Tst.

Management changes have been made at two UK subsidiaries of SPS TECRNOLOGIES INCORPORATED, of the U.S. Mr Tom E. Clarke be-comes managing director — Unbrako Europe, division. He replaces Mr John P. McGrath Balrstow Eves
Charlerbouse Petroleum
De Beers Consolidated Mines
Pairciouse Construction
Hone Kong and Shanghai Banking
London and Scottish Marine Dil
DIVIDEND 6: INTEREST PAYMENTS— DIVIDEND & INTEREST PAYMENTS—British Ever Ready In Spc Chamberlain Phipps 2.2p Dravton Far Eastern TSt 0.4p Feedback (USM) 10 Kennington and Chelsea Var Rate Red 1983 57.5555 Mid-Sussey Water 8xCPf 4pc Mid-land Bank Fits Rate Cab Notes 1983 15%pcb who returns to the U.S. as president — Latin America/ Southern Hemisphere. Mr Mike D. Kirk is appointed managing

Nichland Bank Fitty Rate Cab Notes 1983 15%-pot Powell Duffyrn 9.550 Roval Sank of Canada SUcts 5war (John 8 Trade Dev Financial Servs NV Gtd Fitty Rate Notes 1986 15%-pc Mr Kenneth Petty has been WEDNESDAY AUGUST 25 appointed deputy chairman of Petty and Sons (part of BPCC WEBB.OFFSET). He was WEONESCAT AUGUST 28
COMPANY MESTINGS—
Denvi (James H.) Per Office. Trafford
Park Road, Manchester. 11.35
Energy Finance and General Tst. Dauntsry
House. Fredericks Place. Old Jewry. EC
S.00
Technology Inv Tst. (to become Fleming
Technology Inv Tst.). P. & O Building, 122.
Levdenhall Street, EC, 10.30
Finals:
Traffic august 22
Finals:
Traffic august 23
Finals:
Traffic august 24
Finals:
Traffic august 24
Finals:
Traffic august 25
Fi previously managing director. He has also been made a director of BPCC and technical and sales director of BPCC Web Offset Corporation. Hr George Interims: Derres
Eline Circle Inds.
Eline Circle Inds.
Pearl Assurance
Queens Mose Houses
Rotark
Slough Estates
Squirtel Horn
Stanley (A. G.) Gath becomes managing director in his place. Mr John Parrot has

been appointed managing direc-tor of Chromoworks—also a BPCC company. He replaces Mr Alan Moss who is now BPCC DIVIDEND & INTEREST PAYMENTS—
Aluminum Co of America 45cts
Anglo-American Secs Corp 1.5p
Baker Inthi Corp 23cts
Batleva of Yorkshire 1.5p
Eston Corp 45cts
Excheduer 12 Lpx 1992 64pc. Do 1114pc
1986 57pc
Graat Northern Telegraph Company £10
gas, 12pc (5016-82)
Gresham House Estate 2.6p
Merrill Lynch 32cts
Narronwise Bulloting Society 144pc Bds
25/8 22 27 6983
Ranks Hows McDougall Lns 41pc and 4 ippc group managing director for gravure and web offset sales. Mr John Burfitt and Mr Neil Pigott have been appointed deputy managing director and sales director of Chromoworks, respectively, and Mr Richard Rumble becomes financial

Mr J. A. Plowright has been appointed a director of GILL industrial electronics group has appointed Mr Parviz Mokhtari as the Gill and Duffus Group.

THURSDAY AUGUST 26 COMPANY MEETINGS—
Electric and General inv. 11. Augin Friars.
EC. 12.85
Harris (Philia). Penns Hall Hotel Waimley
Sutton Colorleid Wast Minlands 12.00
Latham (James). Reg Office, Teerside Wharf
Claoton E. 2.30

Claoton E. 2.30 everything expected of her by

OIL

There, the filly could meet, among others, the champion Once the straight had been ably surprising Cecil at adversaries from 1981, C reached, only The Fort's Sandown, Soba was doing ton Park and Glancing.

Letsure Inds, Howard Hotel, Temple Place, WC. 12.00
Monk (A.1 Ren Office Green Lane, Pad-Gate, Warrington, 3.00
Parris IJ. T.1. Reg Office, 136. Snieds Foad, NewCastle upon Type. 10.30
Philos Patents. Grand Hotel. Aybown Street Manchaster. 12.00
Shaw Carpets. Post House, Ossett. rr Walerleid 12.00
Vinten Angel Hotel, Bury St Edmunds. 12.00
Writington Engineering, Reg Office, South Street North, New Whitington, Chesterfield, Derbyshire, 12.00
BOARD MEETINGS—
Finalis.

Finals: Cook (William: (Speciald Globe and Phoenix Gold Mining Gresham Inv. Tst Somporter Interims:

BBA
Himhlands and Lowlands
Hill and Smith
New Darren Oil Tst.
Refuge Assurance
Scottish Agnicultural Inds.

DIVIDEND & INTEREST PAYMENTS-Associated Newspapers 4.5p Asrociated May Corp 14pc Eds 4/3/83 £7.000 £7.000
Dawson Intal 4p
Energy Finance and General Tat
(USM) 0.71p
FIBI Intal Inv NV Gld Fits Rate S775.02 Mercury Common Market Tst Ptg Pf 48p Parrish (J. T.) 4p Scottish and Newcastle Brewerler 2.875p

1991 5769-88
Technology Inv Tst fto become Fleming
Technology Inv Tst) 2.79
Tesoro Petroleum Cora 10cts
Toornill (R.W.) 3.5p FRIDAY AUGUST 27

Segomena 329 Sweren (Kingdom of) Fitg Fixed Rate Eds 1991 \$769.88

FRIDAY AUGUST 27
COMPANY MEETINGS—
Arisington Motor. Chartered Accountants
Arisington Motor. Chartered Accountants
Chartered Accountants
Avelung Barbord Invicta Works. Grantham.
Lincolnshire. 2.15
Davenport Knitwear Allen House. Newarks
Street. Leckester. 11 50
Lennons, Lord Daresbury Motel. Daresbury.
Warringston. Cheshire. 12 00
Waddington John: Reg Office. Waterheld
Road Expectation. Respire. 20
Works. Chellenham. 10 00

BOARD MEETINGS inals: Insolutated Plantations Serhad Consolinated Plants: Raybeck Ward and Goldstne Waring and Gillow

interims: Bernford Concrete Machinery Lec Retrigeration Scottish Northern Inv. Tst. Nagon Finance Yorkshire Chemicals DIVIDEND & INTEREST PAYMENTS-

Argyll Foods 2.25p
Bankers Inv 7st 1.98p
Bislicht Yin 0.55p
Crusby 2.47 84,85p
Combined Intid Corp 45cts
Combined Intid Corp 15cts
Combined Intid Corp Intid C

SATURDAY AUGUST 28

Richard Hannon's twicelooked capable of putting in David Chapman in Ripon's raced colt, Reggae, earned some Great St Wilfrid Handicap. favourable comments from race No sooner had the filly watchers at Salisbury 11 days

The colt, who earned attention following a fourth-placed run in a maiden, for which he started at 33-1 in the hands of Roger Wernham, looks the one to be on in the Trafalgar Square Sweepstakes

WINDSOR
2.30—Free Range\*
4.00—Reggae\*\*\*
5.30—Quest\*\*

### COMPANY NOTICES

Companies (South Australia) Code Section 478

### BASS STRAIT OIL & GAS (HOLDINGS) N.L. NOTICE OF CALL

Notice is hereby given that a call of 2 cents per share has been made on all 50c contributing shares paid to 20 cents each in the capital of the Company due and payable on Wednesday, 8th September, 1982, at the Company's administrative office 17-23 Queensbridge Street, South Melbourne, Victoria 3205, Australia. Shares on which the call is not paid by 22nd September, 1982, will be forfeited.

By order of the Board David Hill, Secretary

12th August, 1982

### BANQUE NATIONALE DE PARIS

Floating Rate Note issue of US\$ 125 million February 1979/91 The rate of interest applicable the six months period beginning August 22nd 1962 and set by the reference agent is 111% annually.

LEUMI INTERNTIONAL INVESTMENTS N.V. US20 MILLION GUARANTEED FICATING RATE NOTES "A" 1987 EXTENDIBLE AT THE HOLDERS OPTION TO 1990

The interest rate applicable to the above Notes in respect of the Six-month Period commencing 25rd August 1982 has been fixed at 119,0% per annum. The interest amounting to USSS9.19 per USS1,000 principal amount of the Notes will be paid on Wednesday 23rd February 1983 against presentation of cogon No. S.

**DE PARIS** 

Floating Rate Note Issue of US\$75,000,000 February 1978/84

BANQUE NATIONALE

The rate of interest applicable for the six month period beginning August 21st 1982 and set by the reference agent is 111% annually.

EVE has outlived the others because of a policy of fair play and value for money. Supper from 10-3.50 am. Disco and top musicians, glamerous hostesses, exciting floorshows, 189, Repent St. 01-736 0557. THE GASLIGHT OF ST. JAMES'S, London's most exciting businessmay's night club.

<del>avenue de la composition della composition dell</del>

BANK LEUMI TRUST COMPANY OF NEW YORK Principal Paying Agent

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### TRONOH MINES MALAYASIA BERHAD (Incorporated in Malaysia)

ANNOUNCEMENT TO SHAREHOLDERS For the second tin export control period from 1st July to 30th September 1982 your company has been allotted quotas amounting to 70.981 tonnes of tin concentrates representing 49.4% of the estimated normal production for the period. In view of the severity of the cutback and the impact of low tin prices, your directors have re-examined the company's production policy to maximise cashflow and profitability whilst minimising hardship to the company's employees.

These constraints which have been aggravated further by the marginal ground ahead of No. 1 Dredge, have "resulted in a decision to close down this unit temporarily from 18th August 1982 until such time as there is a considerable improvement in the situation. No. 2 Dredge, however, will be able to operate normally and by redeploying the dredge crew no retrenchment of workers is anticipated at this stage. By order of the board

Wan Mohamed Wan Yusoff Secretary Kuala Lumpur 20th August 1982

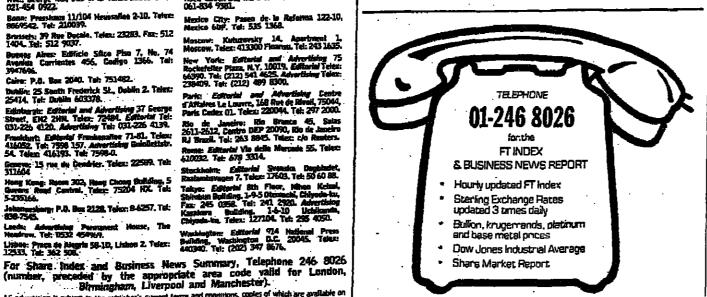
### AYER HITAM TIN DREDGING MALAYSIA BERHAD

(Incorporated in Malaysia) ANNOUNCEMENT TO SHAREHOLDERS

For the second tin export control period from 1st July to 30th September 1982 your company has been allotted quotas amounting to 209.876 tonnes of tin concentrates representing 67.2% of the estimated normal production for the period. In view of the severity of the cutback and the impact of low tin prices, your directors have re-examined the company's production policy to maximise cashflow and profitability whilst minimising hardship to the company's employees.

The quotas available to the company can only sustain the continued economic operation of two units and your directors have therefore decided to temporarily shut down No. 2 Dredge from 23rd August 1982 and to retrench some employees. The possibility of reactivating No. 2 Dredge will be reviewed when there is a significant improvement in the situation. By order of the board

Abdul Malek Abdul Majid Secretary Kusia Lumpu-20th August 1982



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Manufacturers Hanover Limited

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Société Générale de Banque S.A.

Swiss Bank Corporation International Limited

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Particulars of the Notes and Warrants are available in the Extel Statistical Services Limited and may be obtained during normal business hours on any weekday (Saturdays excepted) up to and including September 6. 1982 from the broker to the issue:

Hoare Govett Limited, Heron House, 319-325 Rich Holborn. London WCIV 7PB

August 23, 1982

Employee consultation has been more prevalent during recession, but a union backlash is feared. John Elliott reports

DURING THE recession the of communication managements and company problems has often increased considerably. But genuine consultation and participation, in which employees have a real chance of influencing management decisions, has not in-creased to anything like the

Managers have been keen to cushion the shock of redundancies and closures by spelling out the worst news about potenproblems to their employees. But they have often been forced to go shead and take action without involving the suployees in further consulta-

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The challenge for managements when the recession eases -or at least bottoms out enough for companies to take stock of their long-term relationships—will be to turn these somewhat negative forms of consultation into a more and

One of the problems that will then emerge will be the varying views which are often held by managers and trade union activists within a company about the management styles and consultative exercises of the past two or three years.

Conversations with managers and trade unionists in a number of companies in the past year suggest that, whether or not relationships appear placid or even harmonious on the surface, there are often sharp differences of opinion.

"We tell the shop stewards things about the company's performance and plans that we worldn't have even told our operational managers five years ago," says Bob Roberts, East Anglia regional personnel manager for the Birds-Eye Walls part of the Unilever group, extolling his company's consultation system. "That may be so but we haven't had an impact on actual company policy," rejoin the stewards.

At BL, with its history of troubled labour relations, the difference is far sharper and bitter. "Our labour force has gone out of its way to co-operate with us. Things can always improve more but I have no complaints," says Harold Musgrove, the tough, outspoken



Co-operation by the worldorce "can always Improve but I have no complaints," says Harold Musgrove (left) chairman of Austin Rover. Meanwhile, David Buckle, TGWU Oxford district secretary, claims that "at present it's a waste of time putting a view to management that they don't want to hear"

sion. He is proud of his factories' productivity improve-ments, especially on the Long-bridge Metro production line. But shop stewards are more might lead to disputes.

concerned about their production line power being eroded and about the way that BL's elaborate consultative system, which was set up under the last Government, has been dismantled by Sir Michael Edwardes, current BL chair-"This has been a dambuilding period for management of trade union advance," says David Buckle, the highly Transport General Workers' district secretary in Oxford and a senior BL union official.

### **Complaints**

"There's practically no shop steward involvement in shop floor targets and conditions," he adds. "At present it is a waste of time to put a view to management that they don't want to hear."

Like many union officials, David Buckle has a list of

tor of BL's Austin Rover divi- lodge with management when times improve and when there is a chance of sufficient shop floor support to make it worth while raising issues which

These claims -- and David Buckle's other complaints-are more associated with losing traditional trade union bargaining rights than with the limi-tations of employee consultation and participation evident at Birds Eye in East Anglia. But in all such cases the recession will leave in its wake frustrawhich has clawed back 40 years tions that the parties involved of trade union advance," says may be tempted to try to vent. How serious all this will turn

out to be cannot yet be assessed. Inevitably during a recession most employees are not likely want to share in decisionmaking about cut-backs and redundancies. Equally their employers are not usually likely to want to share their new-found managerial authority or to slow down their closure deci-

Birds Eye's consultative arrangements do however seem to effectively than similar systems in some other companies. Like many groups, Unilever stopped up its arrangements during the being blurred between consulta-Bullock debate of the late 1970s, tion and negotiation. "It mainand created a series of company

At Birds Eye's Lowestoft factories, where the main business is freezing vegetables, there are two tiers of consultation—a factory consultative council which meets every two months and monthly departmental or production line consul-tative meetings, in addition to a higher-level company council meets every three months. Representatives for the fac-

tory council are elected by all employees, not just trade union members - mostly Transport and General Workers. This has led to both union activists and others being chosen, although the factory's full-time chief shop steward always attends by

Although such an arrangement might be resisted in more militant factories, the shop stewards accept this non-union basis, providing the company does not try to deal with negotiable matters, such as terms of redundancy, in the council, In some ways the separate identity

tains the union's primary position," say the stewards.

effectiveness of the The council, however, is not clear. Managers certainly have a useful means of handing over detailed information on matters such as labour projections, marketing plans and sales achievements. This is useful at a time when wide-ranging rationalisation of Birds Eye's different products and locations has coincided both with rapid technological change in food processing techniques and with the recession.

Lowestoft used to be primary fish processing centre but this has now mostly been shifted to Hull. The labour force has dropped from a peak of approaching 2,400 eight years ago to 1,500.

The scale of the changes can be judged by the fact that in East Anglia as a whole the number of managers employed has dropped by 50 per cent over five years to 30. But while the council has

fulfilled a major communication have been no significant changes role, its agenda often includes in management style during the

meeting when 170 redundancies were on the agenda.

However, on one occasion nine months ago, when a council meeting was widened to include all shop stewards for the annual visit of the Birds chairman, more was achieved. The issue was the removal to Hull of plaice pro-cessing—the last fish work left in the Lowestoft factory. This would have caused 150 or more job losses, and an emotional debate took place. As a result the employees agreed to co-operate in modernising the plaice processing and the com-pany is spending about £300,000 on a new fish grader which will dispense with about 40 jobs. So on the surface it looks as everyone should be pleased. if not proud, of their participative achievement. But the

pative achievement. But the shop stewards do not believe they have changed Birds Eye's basic policy of shifting fish handling to Hull, and moving out of plaice processing—primary decisions which they had no chance, they say, to influence. They seem to be worried that their victory may be shortlived. The management believes

more is achieved in the production line consultative Everyone attends. which means there is personal, not just representative, involve-ment. Production lines are stopped for the meetings which are attended by perhaps 10 to 30 people. Here the emphasis is on detailed production results and targets.

The changes at BL have been far more wide-ranging and involve the dismantling of the old consultative system and a dramatic toughening of management style. Stories are told of managers being abusive not

Few people doubt the effectiveness of such methods in helping to turn BL round; but equally, few people can regard them as a satisfactory permanent style of management. David Buckle insists that there

Control

'Sitewatch'

LEE-DICKENS of Des-

borough, Kettering, has developed a simple system to collect information at dis-persed points on large

industrial or commercial sites

and transmit it to a single

display location.

Its "Sitewatch" system

uses a four-core bus cable

from which spurs can be

taken at any point to data

The central processor in

the system addresses each

quency in normally 25 out-

displayed on a light emitting

diode display or on a vdu-

the central processor can be

programmed to take auto-

matic action on receiving a

signal. Lee-Dickens is on

collection outstations.

marshalls.

the data

types of issue—for example the Sir Michael Edwardes during location of cycle racks ap- last November's pay dispute parently dominated a recent that the style would change. "I believe that everyone

accepts that if they see managers being expected to work hard and not being allowed to be incompetent, then they realise incompetence is not acceptable at any level," says Musgrove.

Questioned further about the allegedly rough management strie he says: "It has been hard and it will have to stay hard. But at least there is consistency -no one is spared and when it comes right people are complemented."

He does not believe there will be a backlash one day. "Why should there be when people have got a sense of pride in what they produce and when we are seeking security of comployment for them?" he

In any case, he says that consultation is being restarted. Business review meetings have factory levels for shop stewards, but these seem to be only exercises in one-way communi-

Austin Rover is also starting a limited experiment in a form of job involvement, taking people from different people from disciplines and semiority in Austin-Rover to tackle a certain problem-like the design and production of

### Initiative

Such an initiative is a far cry from the old days of interlocking tiers of consultative committees which actually discussed BL's detailed commercial plans. But at least it could be a tentative step

The problem now for companies like BL is that one day there may be a backlash as union activists try to reassert their lost authority. Managers at all levels of industry differ sharply about the size and the seriousness of the risk of a backlash.

But both the Government and the Confederation of British Industry recognise that the constructive development of positive participation schemes could help to defuse the risk of trouble, as well as paving a way for merging managers' new past year, despite the pledge by acceptable participative style.

### Management abstracts

systems. R. E. Young and H. T. Klahorst in Industrial Engineering (U.S.), Nov 1981.
Defines a fierible manufacturing system in terms of comtransfer devices that can process many types of part; lists hardware and software elements, describes applications, and ex-plains in detail the software requirements for commu-control and machining.

Portfolio management in diver-sifici companies. R. A. Bettis and W. K. Hall in California Management Review (U.S.), autumn 1981

Examines how ten unnamed companies assess the contribution of divisions ("strategic business units"); finds that this portfolio concept is used as an analytical aid, but — because of the massive commitment needed for implementation—is not used

Pricing new products. J. Thorn in Industrial Marketing Digest (UK), Vol 7 No 1
Argues that for new, specialised industrial products, mathematical models and provisional costs are unhelpful in pricing offered an approach which starts off with a detailed assessment off with a detailed assessment of qualities differentiating a product from its competitors discusses how a starting price should be modified by market variables such as advertising and agents' discounts.

Integrating forecasts in business strategy. S. H. Hoth in Research Management (U.S.), Nov 1981

Explains how the (U.S.) General Electric Company attempts to "control its future by analysing opportunities and threats, evaluating responses. and integrating environmental forecasts with strategy formula-tion; exemplifies the approach with thumbnail sketches of the

with thumbhall skelenes of the company's Brazilian operations. Interpersonal skills of leadership. P. L. Wright and D. S. Taylor in Leadership and Organisation Development Journal (UK), Vol 2 No 2 Contends that leadership depends on the use of certain interpersonal skills; describes interpersonal skills; describes and classifies them, and gives examples of appropriate, inappropriate use; relates the ideas to theories of leadership

These abstracts are condensed from the abstracting journals published by Anbar Management Publications. Licensed copies of the original articles may he obtained at £2.50 each (£3 each from September 1, including VAT and p+p; cash with order) from Anhar, PO Box 23, Wembley HA2 8DJ.

### **TECHNOLOGY**

First commercial versions of Sony's new disc player are off the production line

# Europe waits for Sony's little miracle

BY ELAINE WILLIAMS

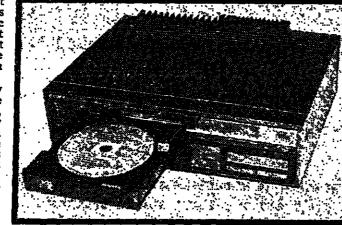
SONY REVEALED the first production versions of its revolutionary compact disc player this week. Then it cast a shadow over this achievement by announcing it is to delay the full launch of the system in Europe until next year.

-z Compact discs, jointly developed by Philips in the Netherlands and Sony in Japan, saim to provide sound quality presently unobtainable with conventional hi-fi systems. Each Pdisc, measuring only 41 inches 'in diameter, can store an hour's smusic on a single side, coded edigitally in the form of microscopic pits.

91 These tiny pits — formed in a spiral some 21 miles long are buried beneath the surface of a protective plastic layer. The information on the disc is read fby a laser stylus within the disc player. The disc lasts longer ithan conventional LPs and is unaffected by surface scratches dust or finger marks.

Sony attributes the delay in Laser introducing the disc system to the insbility to produce sufficient disc players to support the launch. Philips has also agreed to postpone its European launch to coincide with Sony. Mr Tim Steel, Sony's UK the disc.

general manager optimistically



estimated that there will be a several market of about 250,000 disc ensure that the laser can track players in the first year of the the tiny spiral of pits and to Japan have invested and are

However much will depend However much will depend can be programmed, and a digion the availability of music tal read-out tells you which which can be played on the track is being played. In future which can be played on the disc system. Few record comdisc system. Few record com-discs, the titles of each track panies are yet committed to will be encoded on the disc so supply recorded material for it can be displayed on the

Preview of the new compact disc player.

microprocessors provide the user with informa-tion about the disc being played.

The order of playing the disc

the disc-whenever it does arrive—will be timely for the record industry which has been facing severe difficulties in recent years. Sales of records have microscopic pits which corredeclined over a seven year period from 91m to just over audio signal.

67m in 1980 in the UK alone. about by the combined effects of the recession, home taping of LPs and pirate tapes. The nickel master is then used to record industry estimated that make several production stampin 1980 alone it lost £200m in ers. revenue from home taping of

### Optimism

Despite Sony's optimism, there has been very little euphoria from the record companies about the compact disc. Only two major record combines, Polygram—partly owned by Philips—and CBS-Sony in now making compact discs. Polygram has spent DM 100m in its plant at Hamburg which will have a capacity to make 5m discs a year. A modest coma company back £7m to £10m because compact disc making is a sophisticated process.

pond to the digitally encoded After undergoing a silvering This decline has been brought process, this glass master is bout by the combined effects pressed against a nickel plate to form a reverse copy. This

glass plate with a photoresistive

material which is sensitive to

ultraviolet light. A powerful

laser beam cuts out the tiny

Discs can then be made using injection moulding technique or outstation in turn and allows stamped out in a similar way to conventional discs. a fixed time for reply; frestamped, the discs are covered stations a second.

The information can be in a thin layer of aluminium so

### it can be read by the laser stylus and finally a protective plastic layer is added.

Reluctance

Many record companies are reluctant to invest in this tech-

the disc. player. The process involves prepar- a wide range of music being Sony's first model contains. Sony says that the arrival of ing a master disc by coating a available to support the players.

nology before the market is really proven though there is some indication that several other major companies are pact disc making plant will set likely to make a commitment Certainly the long term future of compact disc will depend on

### Torvac's digital programmer

0536 760156.

Welding

TORVAC RAS announced a new range of vacuum and electron beam welding equip-

The Series H vacuum furnaces are horizontally loaded and offer options on the size of the working zone and on the method of vacuum pumping.

They are also fitted with a new digital programmer which allows for the specification of complex processing sequences—for examble. harden and double temper, vacuum bake out followed by braze under hydrogen followed by cooling under inert gas or letting up to air and pumping down again in the same cycle.

The programmer is compatible with contemporary temperature controllers made by Eurotherm, Honeywell, Leeds and Northrup. All Torvac vacuum furnaces

are offered with either turhomojecular extra performance diffusion pumps.

Electron beam welding equipment from Wentgate Eugineers of Huntingdon Cambridgeshire, is now being exported to the Eastern Bloc. The DW 602 electron heam welder has been sold in Czechoslovakia and exhibited in Moscow. Wentgate claims over 120 of

its machines are being used in production world wide. Torvac is on 0220 2646; Wentgate on 0408 63984.

### Memories

### Rodime and Comart drive disc pact

RODIME, THE UK's only indigenous manufacturer of the 51 inch Winchester disk drives which are seen as the key to personal computing power in the future, is to supply its drives to Comart its "Communicator" range of microcomputer systems.

These Winchester drives

are small, tough and comparatively cheap when measured against conventional computer storage.

David Broad, Comart md
said: "We have wanted to increase the British component content of the Communicator for some time now but were not prepared to make sacrifices on quality or quantity."

The Rodime drives give capacities of up to 26Mb with fast access. More from Comart on 0408 215005.

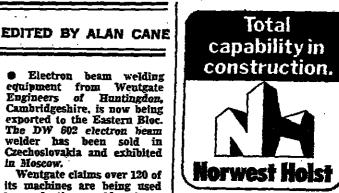
Office

## Vdu top file tray

The paperless office may be on the way . . . but not quite yet it seems. If you want to use the top of your visual display unit as filing space rather than a mere dust trap, Inmac of Runcorn, Cheshire, offers a VDU tray in acrylic plastics. A slot in the front allows the contents to be picked up easily.

It measures 12 ins by 16 ins by 21 ins and Immac claims it will fit all makes of VDU except those from Lear

£19.00 each or £15 each if three are ordered. Inmac is on 09285 67551.



Electronics

### New zero force connectors

ITT CANNON has launched a new series of zero force connectors designed for 10,000 mating/unmating cycles with-

out failure. Designed for low cost, high performance multiple wire power and signal products, as many as 2496 contacts can be

Crimp or wire wrap contacts are available from 60 to 2496 contact positions. The plug and receptacle do not touch during mating until the connector haives have been fully engaged.

Current rating, eight amp: contact resistance 15 milliohms maximum: more from ITT Cannon on Basingstoke

Electronics

### How to kill static electricity

STATIC ELECTRICITY spells death to silicon chips, which is why electronic circuit assemblers wear antistatic clothing and earth themselves and their working tools before handling microelectronic components.

Linvar of Leicester offers a range of equipment to defeat static electricity and create a static safe work area. The equipment includes a

work surface which continually drains charge from any conductive object placed on it, a wrist strap to integrate operators into the grounding system and ship-ping tubes. Top of the range is a complete conductive bench unit. More on 0533

# A company whose customers hope never to use its products

# Brisco: where 'shutdown' is good business

tems for oil production plat- papies such as Baker CAC which forms and pipelines. .In October Brisco, a priva-

tely owned UK company, with a part of Camco. turnover of around £5.5m, will ·launch a new type of shutdown system for pipelines using a valve it had developed for its wellhead control system.

The new break-line valve system can detect—through a apsystem of hydraulics—variations in pressures which might indicate a problem somewhere along

break in the pipe will automatic part of the North Sea. p the pipe. began installing well-head system. The pressure in the The new system is part of safety systems and from this hydraulic system holds the

recently introduced a control valve too, Otis and Autocon, Despite the opposition, Brisco

Engineering has won some notable success with major customers such as Phillips and BP in the North Sea and recently won an order to supply shutdown systems for the Bombay High Field in India.

service to the growing number The valve system nearest the of gas platforms in the southern Five years later, the company

an offshore oil engineering

BRISCO Engineering makes the Brisco's expansion plans, but as developed a valve which it valves for the production well tually find its way to control sort of equipment its customers a relatively small company it believed was better than those open. believed was better than those open. hope they will rarely have to faces fierce competition especi- it could buy from established fuse—emergency shutdown sys- ally from the U.S. with com- manufacturers. Its first major customer in the North Sea was British Petroleum.

Well-head safety systems are connected to 50 well-heads.

On the platform itself, is conwhich holds the hydraulic fluid for the pump which maintains The company began operatine pressure in the control ing in 1968 mainly to provide system and the complicated network of stainless steel pipes which are connected to ensure that all valves operate in the right order. They are, in effect, the logic control system for the The pressure in the

Each well-head usually has

three control valves—the master, ring valve and the down- tems are they are smaller, hole valve. The master and ring valves sit on the platform for very simple in principle, but easy access and can be operated often complex in practice be to stop production for a variety cause one oil platform may be of reasons, such as regular maintenance.

The downhole valve, as its tained the reservoir oil tank name implies sits on the sea-bed and is the last line of defence, if anything goes wrong. The shutdown system has to operate within 45 seconds of the emergency button being pressed. Companies could quickly lose a reputation if their system did

not work Mr Alec Godier, Brisco's technical director, is in no doubt that microelectronics will even-

sofety shutdown systems planted on the seabed. "The advantage of such sys

lighter, cheaper, low power and simple to maintain." Mr Godier said. In addition they can be easily linked into the platforms computer controlled monitoring system and the whole system can be changed by computer programme.

There are still arguments in the oil industry about the use of microelectronics in the wellhead itself. The circuitry has to be to very rugged to survive the harsh environment. However, Brisco Engineering is already looking at the potential for electronic control so it is ready when that day comes.

English to those of us who

tasted it in its own time. As paintings they are curiously complete and definitive, the

handling of the oil paint as

straight-forwardly assured as the imagery is unequivocal.

And then suddenly, almost overnight, there came the air-

brush, and with it the adoption

of a larger and technically more ambitious scale (or so it may have seemed), and the aban-donment of the personal touch of brush and oil paint, Billboard

imagery was now given the billboard treatment in manner

and format, disparate icons -

Museum of Modern Art, Oxford/William Packer

The problems of reputation are as various as reputation itself, but even so the domestic view of the expatriate is always rather a special case, and one unlikely to be eased by the passage of time. Given a flying start before the removal, and that removal to prove all but complete, only sharpens the poignancy, the equivocality of it all. Is the artist ours any more, or can his work be claimed by others, just as we assume so readily that of our own more permanent visitors? Whom can

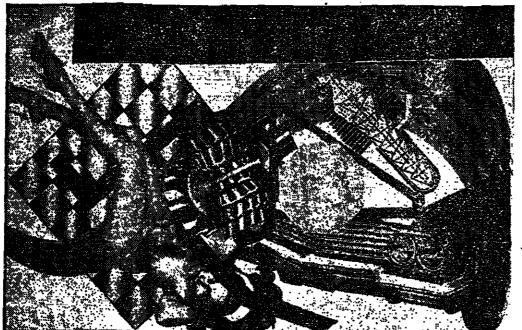
we set him against, when for so

long we have seen so little? Is

the work any good any more?
The retrospective comes to our aid, of course; and Peter Phillips is now most usefully presented to us just so in an exhibition lately put together by the Walker Art Gallery in Liverpool and now out on tour (Museum of Modern Art, Oxford until October 3—and then on to Newcastle, Edinburgh, Southampton and finally the Berkingen) the Barbican).

Phillips was one of the brightest of those young stars. Novae I suppose, that rose in the firmament of British Art in those conspiciously star-struck early 1960s, one of an extra-ordinary group that became established. even national, established, even national, figures while still at the Royal College, the stuff of earnest television documentary, colour supplement and glossy com-pendium. Pop Art was news, and their work in the galleries.

And like all the others, Phillips was seduced abroad, especially at first to America: but whereas they have all come and gone and come back again, and their work with them to record their progress, though he came back to Europe, he seems justify this present exercise, never really to have come home. may now put on some weight.



Custom Painting, No 5 1965) by Peter Phillips

or perhaps not.

The first thing to say is that the earliest work product of the Royal College of Art, and in

Rather he settled in Zurich, and though he has since shown widely enough abroad, here we have had one dealer's show in 17 years and only the occasional participation in prestige assem-

blies and reviews.

There is no reason at all why things should be otherwise, but such is the background against which RetroVision, as the show is called, must be seen. It presents indeed the only chance we have ever had to see a sub-stantial body of his work, and to see it clearly and see it whole disembodied reputation. which has certainly remained high enough over the years to

fact the substance of his Diploma Show in 1962, still looks very good, evidently a most unusually accomplished debut. The imagery is thrown together easily, almost casually at times, in collage-like associa-tion, the references a lively confection of that first post-war generation's popular heroes and symbols, founded not in direct experience but a kind of dream of American culture picked up

through songs and films, juke

Mel Brooks apparently started

vriting a musical called Spring-

time for Hitler and turned it

into the film The Producers

when he realised the musical

had no chance of success. The

Producers became the story of

Zero Mostel's larceny in selling the musical many times over

because it was doomed to failure -and then having a smash hit

that lands him in jail.

Des McAnuff, writer, composer and director of The Death

of Von Richthofen as Witnessed

rom Earth, has another Spring-

time for Hitler on his hands at the Public Theater. This First World · War musical depicts

Manfred Von Richthofen, the

about his future after confirma-tion of his 80th kill in hattle.

Lured into the battlefield by an

inaccuracy in the kill confirma-

tion, von Richthofen is con-

fronted by a German lance cor-

poral who says the flying ace's

destiny is to take over Germany,

sue for peace and rebuild the

decides to take to the air once

two foolish and scared Austra-

Von Richthofen

companion,

country. Instead.

aron German flying deliberating on April 20, 1918 later compositional ploys, but quite lacking anything of his studied painterliness. Phillips has always been techically scrupulous, but for the 10 years and more after 1965 or

may have harked back to Leger's

so, it would seem that his hard, impersonal, uncompromising finesse was all but the entire point of the exercise.

Air brush in hand, he took it

ever further, and by the mid-70s was using specifically photo-graphic rather than more generally graphic reference, and making particular essays in photo-realism: the imagery, moving on from jumbled mosaics of material culled from the girlie glossies towards a more ambiguous and sharply realised symbolism of snake and parrot, mask and flower. But still, whatever his inten-

tions might have been, the actual experience of his work was now stuck in a dangerously was now stuck in a dangerously split and one dare say sterile condition. It had taken this comparatively late work perhaps to make the point, but it is one which holds good for all the central period in this particular career. To put it baidly: far from being at one with each other, which is the desired condition in all art, technique and image were now entirely at odds, presenting the viewer with a stark choice of attention.

On the one hand the image was so strong that it took over absolutely, quite free of what it was and how it was made were now matters of which viter indifference; on the other the technical facility was so self-consciously and assertively boxes and pin-tables.

pin-ups, car parts, exotic birds, demonstrated that the imagery
The flavour is more than fly wheels, springs and cogs, all it carried could be all but
European, it is unmistakeably overlaid and floating free invisible — a nice paradoxical

against a schematic, geometric state of affairs. But the signs ground: a free association that are that Phillips at last chose to move out of the corner he was in That early work had none of this division to it, and now the latest work begins to bear certain decided similarities to it, all most encouraging.
It is back to the oil paint and

the modelled manipulated surface, the use of the brush; and immediately the painting takes on a new life and particular identity. And is still uncertain, it has moved far away from the dominating, external icon, and is now much more of itself, a fragmentary, tentative, in parts abstracted kind of stilllife; a piece of cloth closely observed and carefully modelled set against what might be a fragment of pottery, or a corrugated card, and all pointed and

pulled together by a bright, flat strip of primary colour. Phillips' continuing uncer-tainty is still evinced by the violation of the picture surface in his most recent work of all, bringing the elements in his compositions forward of the and with them all the complica tions and ambiguities of relief

Time enough for that, but I cannot help feeling that a painter's problems are only to be resolved back on the surface and beyond, within that illusive pictorial space—the real world a snare and a delusion. What is good, however, is to see a once natural and confident painter turning to ask himself again a

true painter's questions.
Our first interest in Phillips survives, I think, on merit, but only now is it possible to say as much: five years ago would have been too soon, and he still has the substance of his case to



Mike Grady and Gav Hamilton

### Beyond Therapy/Latchmere

### Rosalind Carne

osychiatrists are guaranteed to self-conscious titters among a London audience. It would certainly be unduly optimistic to hope for anything more from this feeble comedy by Christopher Durang.

The play was commissioned and first produced by New York's Phoenix Theatre, and occasional good lines and the manipulation of encounters hint at a dramatic talent gone to waste. But what we are offered is a satiric treatment of very familiar raw material, whose raucous "Carry On Shrinking" flavour rapidly dwindles into

nothingness.
Tom Conti is the director, but he fails to transmit much of his own talents, drawing out five crude caricatures and only one convincing character. The sharp, impersonal style is out of place when there is nothing sufficiently clever or funny to compensate for lack of personal interest. Only Gunnar Möller's German therapist carries any suggestion of authenticity. Predictably, his own problems are quite as severe as those of his patients, who usually land in his bed after the second session. His current victim is

Lonely hearts and randy begins to tire of the expensive entanglement and seeks salvascries of personal ads.

She meets Bruce, a confused bisexual with a penchant for instant analysis and vulgarised psycho-sexual jargon. Bruce, too, employs a paid listener, but his trusty Dr Charlotte proffers more mouth than ear as she rattles off her own con-cerns and turns for emotional succour to her stuffed Snoopy

Despite its modern pretensions, the piece is peppered with stock targets, like the hypersensitive homosexual, hounded by his interfering mother. She calls him up in Bruce's apartment, and the focus of interest switches between its sleek Manhattan elegance, the two consulting rooms and a restaurant. This is neutral territory where several ill-assorted egos collide with considerable noise and fluster in a climax of group therapies.

If you can sit through two hours of this you might enjoy resuscitation via a light meal in the Gate at the Latchmere's own excellent restaurant. Good cooking, reasonably priced, and served piping hot by very friendly waitresses.

### BBC Symphony/Albert Hall

### Richard Joseph

night's Prom was a revival of of setting up a wide ranging Orlando's Music, composed in 1974 by Giles Swayne. It is, for out rather too tastefully.

a first orrhestral piece, a more

The BBC Symphony and i first orchestral piece, a more than promising achievement The music is clearly, audibly structured into three neatly Swayne with an unexceptionorganised movements: Fanfare.

the unhappy Prudence, but she

Lullaby and Childsplay. much of the first two move-ments it rises and falls in predictable waves—the regular use of these contrasts, rather than the exploration of organic growth, seems to be Swayne's method. Ever-returning E flats and C's are used as tonal anchors, but the material is not defined or re-perspectived by this technique. Though Swayne is the result of a narrow intervallic vocabulary rather than tightly organised thinking.

But the handling of the Especially good at frequent juxtapositions of speeds (for example, strings worthy central focus for the running, woodwind marching, difficult instrumental solos that brass crawling) in the opening abound in this tiresome tone Fanfare. Overall, Orlando's poem.

The centrepiece of Friday Music gives one the impression framework and then filling it

John Pritchard prefaced their secure performance of the able account of Mozart's Progue Symphony: smoothly played, dynamically well-proportioned and a little phlegmatic. The bulk of rehearsal time had clearly gone on Strauss' Don Quixote. Pritchard's operatic experience has given him a solid sense of priorities. Primary voices are brought to the fore secondary voices are cleanly articulated, loose ends are then tidily swept into the uses many chords of similar corner. And this works ex-construction I suspect that this tremely well for such an overwritten piece. A clear guiding hand is needed in order to shape its thick orchestral textures. The cellist Yo Yo Ma acted the orchestra is always fluent, title role very well. His highest good are the harmonics did not speak clearly, but otherwise he proved a

### The Creation/Elizabeth Hall

### Max Loppert

The "good week for Haydn- to the assembling of such inlovers in London" that I fore- strumental forces and the use told on this page last week of the splendid Westminster turned out to have had greater Abbey Choir trebles in place attractions on paper than in its of choral soprances. But actuality Following the small- Christopher Hogwood, conductscale Prom performance on ing. seems to have left the matauthentic instruments of The ter of The Creation there; cersens came Friday's kindred account of The Creation—with times lifeless account of music two of the Prom solo singers, a normally springing at the list period orchestra of different tener's every sense, I am hard title but mostly identical perput to recall a single phrase the sonnel, and a similar reduction whole evening that gave an of choral numbers. In the smaller South Bank hall, the greater immediacy of impact lost to the vast spaces of the Albert Hall should have been Athert Hall should have been . With minsy solo singing (by ensured: Given an account of Judith Nelson, Nigel Rogers in the work as nearly inadequate as reputable singless and install.

Music may have extended here tur, is unwelcome.

indication of proceeding from anything so vulgar as an inter-pretation.

as reputable singers and instru- Thomas wearing his saintliest mentalists could contrive to Anglican-curate vocal manners), make it, the opposite was the and hapless pauses between numbers for re-tuning (though final impression. - numbers for re-tuning (though The stamp of musicological this hardly guaranteed accurate rectitude in the execution of intonation), this was a pro-Classical and pre-Classical music longed stay in becalmed waters. normally conferred by the Denatured Hadyn, whatever its name of the Academy of Ancient source, character, or imprima-

### London Contemporary Dance Theatre at Sadler's Wells

Theatre will open its three Barclays Bank International, week season at Sadler's Wells will be on Tuesday, November Theatre with two works by American choreographers: Esplanade by Paul Taylor and The Broad by Richard Kuch. Both will receive their London premieres on the first night of the season, Tuesday, November 16, which will be a benefit performance in aid of the Student Scholarship Fund of the London Contemporary Dance

School. A new work by Robert Cohan, Chamber Dances, will be given its London première on Tuesday, November 23 and the British première of Chris-

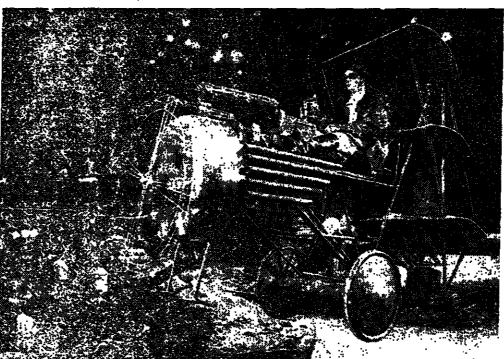
London Contemporary Dance titled new work, sponsored by

presents a point of view some collage is by Pierre Schaeffer, topher Bannerman's as yet un- Francois Barbeau.

in a realistic foxhole throughout the play are contrasted with the solemn and self-important dig-Paul Taylor's Esplanade has been taught to the company by Eileen Cropley, the first British dancer to study contemporary dance at the Graham Studio in 1963. It is danced to Bach's Concepto No. 2 in F. major and only of the German officers appear for the two sides to do their more flamboyant musical numbers and the production boasts extraordinary props. including a full-sized Fokker plane of bellions marking musical superstitutes and the production capture the martial imperative with everything but the wine. Concerto No. 2 in E major and of while the flapper era and Eng. span. lish music hall are also evoked. A Concerto in D for two violins. The Brood is based on Brecht's drama "Mother Cour-age and Her Children" and medals to get famous," insists 15 years on from the play's conclusion. The music/sound and the work is designed by bubble - headed Robert Joy).

# The Death of Von Richthofen/Public Theater, New York

### Frank Lipsius



A scene from 'The Death of Von Richtofen as Witnessed from Earth'

more and dies at the hands of gives realistic dimensions to the Bob Gunton. lian infantrymen, whose antics squalor of a front-line bunker along with the painted ceilings in the French château. Platforms hellicose marching music, with everything but the wing-

A precision-directed east is the latter because the Australed by Robert Westenberg as lians intend to be a music-half the Red Dragon. His hard but duo after the war ("We need sympathetic manner perfectly suits a role for which he does a Mark Linn-Baker in an excellent magnificent job as a stand-in, Australian accent to his equally working tightly and expressively with his adjutant played by visit of the company to London substantial support from the Jeffrey Jones and another pilot, and they bring 1980 and Kon- Goethe Institute.

Douglas W. Schmidt's set Hermann Goering, played by Hitler's big chance. The lance-corporal in the field time for Hitler is a credit to who inspires Von Richthofen's McAnuff's flair and daring, but political ambitions is Adolph the play's very venturousness

Richthofen's death is obviously years ago,

The similarity with Spring-Hitler, played with courageous got it savaged by local critics, cunning by Mark Petrakis. Von just as Mel Brooks predicted 20

### Pina Bausch's first London season

from Wuppertal will present been seen this year at the two productions at Sadler's Adelaide and Holland Festivals. Wells between September 14 Sadler's Wells in association and 25. This will be the first with Michael White and with

Pina Bausch's Tanztheater takthof, two pieces that have The company is presented at

### **THEATRES**

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SAT. LAST 4 WEEKS. BRURY LANE Theatre Royal, CC 01-836 8108. Gra sales 379 8061. TIM CURRY. PAMELA STEPHENSON. GEORGE COLE. ANNIE ROSS IN THE PIRATES OF PENZANCE. Eves 7.30. Mat Wed & Saz 3.0. Cradit card Hotline 930 9232. GARRICK. CC 836 4501. Eves 8. Mar Wed 3, Set 5 & 8. 12th HYSTERICAL YEAR OF THE LONGEST RUNNING COMEDY IN THE WORLD, NO SEX PLEASE WE'RE BRITISH. Directed by Alian Davis. Group sales Bex Office 378 8061. Credit card bookings 930 9222. APOLLO VICTORIA. 01-834 6177.
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9832. Gro sales 379 6061. Eves 7.30.
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RONALD PICKUP. SMELLA GISM. BILL
FRASER, MARGARET RAWLINGS.
FREDA JACKSON. HARRY ANDREWS
IN UNCLE VANYA by Anton Chekhov.
Directed by Christopher Fettes. HARBICAN HALL, Barbicas Centre ECZ-CC 01-518 8801. Res 01-528 8795. Ton't 5.05 pm regional Youth Orthestra-Carlstopher Saymas conductor. Ends Lupu Mand. Debouser: Iberla (Imbeds). Mazartz Plano Concerto No. 25 K488; Bratinet Syntophany No. 1. Soatsored by Lloyds Bank and Capital Radie. Trura to Sat, two Camulete screenings of Maspleton. HAYMARRET THEATRE ROYAL 930 9832. From Scat 7 LEDNARD ROSSITER In THE RULES OF THE GAME by Luly prendelo. Directed by Anthony Quayle.

HER MAJESTY'S. 01-930 6606-7. Credit card Hotlines 930 9232 & 930 4025-6. Group siles 379 6061. Eves 7.30. Sat mat 3.0. PLAYS BANK HOLIDAY MONDAY. THE NATIONAL THEATRE'S MULTI-AWARD WINNING INTER-NATIONAL SMASH-HIT. FRANK FINLAY IN AMADEUS by PETER SHAFFER directed by PETER HALL with Nickolas Grace. MUST END OCT 2.

KINGS HEAD, 226 1916. Dnr 7. Show 8. I'M JUST WILDE ABOUT OSCAR, a musical by Penny Fatth & Howard Samuels. LONDON PALLADIUM. 01-437 7373.
MICHAEL CRAWFORD in the Broadway
Musical BARNUM. Evgs 7.30. Mat Wed
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01-437 2055. 01-734 8961 for Instant
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LYRIC THEATRE. Shattesbury Ase. Box Office 437 3586. Tel. Credit card bkgs accepted. GLENDA JACKSON. GEORGINA HALE IN SUMMIT' CON-FERENCE A new play by Robert David MazDonald. Eygs 8.0, Mars Wed 3.0. Sats 5.0. MAY FAIR. 5 CC \$29 3036. Mon-Thurs \$ 0.0. Fir and \$2t 5 6 8.30. Richard 1 odd. Dorren Nesbirt. Carole Moviam in THE BUSINESS OF MURDER. SECOND GREAT YEAR.

NATIONAL THEATRE. 5 928 2252. QUIVIER (open stage): Ton't 7.15 DANTON'S DEATH by Buchner. Tomer 7.15 DANTON'S DEATH age): Ton't 7.45. Tomor 3.00 clow orice mat) & 7.45 UNCLE YANYA by Chekhov.

COTTESLOE Lamail auditorium—low price tics): Ton't. Tomor 7.30 THE BEGGRE'S OPERA by John Gay. Ton't 6.00 AN MONOURABLE MAN. a play by Alan Drupy. 45 mins Pizitorm Perf all 215 6.150. Excellent Cheap seets all 3 theatres and \$1 ANDEY in Olivier/Lyttleton from 10 am on day. Car park. Restaurant 928 2033. Credit card bigs 928 5933.

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NEW LONDON, CC Drury Lane, WCZ. 01-405 0072 or 01-404 4079. Evs 7.45. Tues and Sat 3.0 & 7.45. The Andrew Lloyd-Weber-1. S. Etiot Award Winning mislical CATS. Group-bookings 01-405 1567 or 01-379 8061. LATECOMERS NOT ADMITTED WHILE AUDITOPIUM IS IN MOTION. PLEASE BE PROMPT. NOW BOOKING TILL JULY 1983. OPEN AIR REGENTS PARK, 5 486 2431, Instant credit card bookings 930 9332. A MIDSUMMER NIGHTS DREAM tonight. Tues 6 Set 7.45. Mats Wed 6 Set 2.30 FHE TAMING OF THE SNREW, Wed, Thur 8 Fri 7.45. Mat Thur 2.30 Final weak. PALACE. CC 01-437 5874. CC Hotline 437 3327. andrew Llayd-Webber's SONG AND DANCE. Starding Gemma Craven & WAYNE SLEEP. Due to overwhelming demand now booking to Jan 1983. Eves 8.0. Fri & Sat 5.45 & 8.30. Some good seats still available most peris. Group sales 437 6834. 379 5061. MARTI WEBS RETURNS FROM HOLIDAY SEPT. 13.

PICCADILLY. S. Air-cond. 437 4506. CC 379 6565. Group sales 01-836 3962. 379 6561. Mon-Fri 7.30. Mats Wed 3.0. 527 5561. Mon-Fri 7.30. Mats Wed 3.0. 527 5.30 & 8.15. Students £3.50. Plays Bank Holiday Mon Aug 30. ROYAL, SHAKESPEARE COMPANY In Willy RUSSEI'S rove comedy. EDUCATING RITA RSC also at Barbican.

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3681. CC Hottline 930 0886 of Teledata
01-200 0200 f/28 hr bigs; group sales
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MUDD. CHRISTOPHER TIMOTHY In
UNDERNEATH THE ARCHES. The smash
hit lamity musical. Mon-Thur 7.30. Fri
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ANY TICKET. Children. OAPs. students.
Mon-Thur & Fri 5.15. QUEEN'S. 5 CC 01-73-1 1166, 439 3849, 4051 Creell card 01-930 9232. Group sales 01-379 5061, Evenings 8.00. Mat Wed 5.00. Sat 5.30 & 8.30. ANOTHER COUNTRY by Julian Mitchell.

RAYMOND REVUEBAR. CC 01-734 1593.
Man-Sat nightly 7om. 9om. 11om. PAUL
RAYMOND presents THE FESTIVAL OF
EROTICA. Special concession to members
of HM Armod Forces. Admission £1-00
to any 7 pm perf. 25th sensational year. ROUND HOUSE. 267 2564. OXFORD PLAYHOUSE CO. in THE CHERRY ORCHARD, Dir by Mile Alfred Evs 8.00. Last Week.

ROYAL COURT, S CC 730 1745, TOP GIRLS by Caryl Churchill. Preys from Sat 8.00. Openus Sept 1 at 7.0. Sub Evgs 8.00.

ROYAL FESTIVAL HALL 01-928 3191. C: 01-928 6544-5, LONDON FESTIVAL BALLET font to Fr eves 7.30 Sat 3.00 5 7:0 L3 Sylphide (Ton't Evedinkova) Schauluss Latten). ROYAL OPERA HOUSE COVENT GARDEN 5 240 2066. Access/Visa 836 5903. 10 am-6-30 pm (Non-Fr.) 82-83 season opens with DER RING NES NIBELUM-GEN. First peri Mon Sept 6. Personal SADLER'S WELLS THEATRE EC1. Until Saturday! SUMMER ARTS FESTIVAL—LONGON'S FESTIVAL—CONTROL FESTIVAL—LONGON'S FESTIVAL—LONGON'S FESTIVAL—LONGON'S FESTIVAL—LONGON'S FESTIVAL—LONGON'S FESTIVAL FE September. 3rd dance subscription now open, Ring 01-278 0855 124 hrs) for brochure. AMPLE FREE PARKING after 6.30 pm. AVOY. S 01-836 8888, CC 930 9232. Evenings 7.45. Mats Wed 2.30. Sat 5.0, 8.30. MICHAEL FRAYN'S NEW COMEDY NOISES OFF. Directed by MICHAEL BLAKEMORE.

ST. MARTIN'S. CC 838 1443. Eves 8. Tues Mar 2.45. Saturdays 5. Againa Christie's THE MOUSETRAP. World's longest-ever run. 30th Year-Fully air-conditioned theatre. SHAW. 01-388 1394. National Youth Thoatre in Peter Terson's Epic Farce THE BRAD AND BUTTER TRADE Last 6 Days. Evgs 7.30. Mat Sat 2.30.

VAUDEVILLE. CC 01-836 9988. 01-930 9232 48 lines). MOIRA LISTER PATRICK CARGILL, BAREARA MURRAY. GLYN HOUSTON, KEY FOR TWO. A new comedy by John Chapman and Dave Freeman. Previews Sept 6 4 7. Opens Sept 8. VAUDEVILLE CC 01-836 988, Eves 8.
Wed mats 2.45. Sats 5 & 8. GORDON
JACKSON IN AGATHA CHRISTIE'S
CARDS ON THE TABLE. Fully airconditioned thesire. NINE MONTHS.
RUN ENDS SEPT 4.

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D1-828 4725-6. Group sales 379 6061.
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The News Musical WINDY CITY. Based
on the play The Front Page. Directed by
Peter Wood. Evos 7.30. Mat Wed & Sat
3 pm. Credit card Hotline 930 9232.

WHITEHALL 939 8975-5976 and 830 6591-7768. ROBERT POWELL as Philip Mariowe. LEE MONTAGUE as Raymond Chandler in PRIVATE DICK with Ronnie Letham and Elizabeth Richardson, Tikles 13, 24, 25, 26, 27, 28, Statents S-by 22,50, Mon-Fri 8 pm. Sat 6.15 pm and 8.45 pm.

WYNDHAM'S, S. Air-cond. 836 3028. CC 379 6565. Gra reductions 836 3962 Mon to Sat 8,00. Plays Bank Holiday Monday, Aug 30. ROSIN ARCHER II A STAR IS TORN. YOUNG VIC (Waterloo). 928 8363. Even 7.30. Sat Mat 2.30. EDWARD FOK in HAMLET. All seems £2.30. No port Aug I Left in carriage and pair (6)

10 I've turned to lemon squash, not a good sign (4, 4)

(6)

15 Pins of revolvers? (4) 16 One who feels the heat for

21 Labour staged a walk-out? (4)

25 Not many people with a dog will keep one indoors (6) 26 It may be put on disc (8) 28 Without it there would be

total ignorance (8) 29 Chews a sort of nut (6)

31 Got up smar(ly (6)

DOWN

1 Welsh river name (8) Z Girl thought to be like

### F.T. CROSSWORD PUZZLE No. 4,955 ACROSS

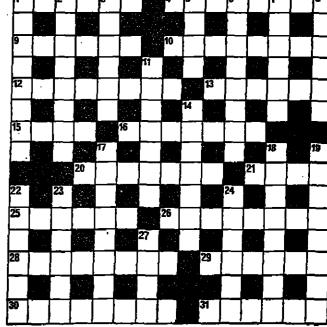
4 Wise step in the present era 9 Ploughed a mowed field (6)

12 Gambling game permitted in the course of a journey (8) 13 They're made to measure

. one who feels the cold (7) 20 Book covering part of N. Africa (7)

30 A group of society women

Queen Victoria (8)



3 Given the sack (6) 5 Decorate with flags? (4) 6 Getting cool and rude treat- 22 Fights for food left over (6)

ment, blushed (8) .7 Band member with permit (6)

8 Man enters another order (6) 11 Rising damp in place for cooking (4-3)

14 Fall of rotter in law-suit (7) 17 Just the chap for transplanting trees (8)

18 The joys of French windows

19 Don't come - give support elsewhere (4, 4)

23 It takes a good deal to satisfy him (6)

reasons (4)

24 Not just lacking in beauty (6) 27 It may be shot for security

The solution to last Saturday's prize puzzle will be published with names of winners next Saturday.

# **FINANCIAL TIMES**

BRACKEN HOUSE, CANNON STREET, LONDON EC4P 4BY Telegrams: Finantimo, London PS4. Telex: 8954871 Telephone: 01-248 8000

Monday August 23 1982

# A chance for U.S. diplomacy

NOW that the bloodshed and bination of continued stalemate of the Palestinians has left, the chance must be seized to make now accept them, and the up-out of these episodes a turning surge of fundamentalism could point in the search for a prove a dangerous one. solution to the Palestinian hollow appeal for the unattainable: there are practical reasons why Washington should not now settle back into a mixture of relief and disillusionment, and why the Arab countries should not argue for violent retribution against Israel for what has

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One danger is that the U.S. will be sidetracked by the inevitable wrangling over the withdrawal of Syria, of the PLO. of the Israeli army and of the peace-keeping forces from Lebanon. Certainly there is scope for many months of diplomacy over this problem. But it must be solved in parallel with a new initiative on the deralled and discredited search for a comprehensive settlement to the core problem in the

The moment is ripe inside the U.S. because a new Secretary of State will be dealing with public and political opinion made more malleable by Israel's siege of Beirut. Perceptions have been jarred by the toughness of the Israell offensive and will be more receptive to the reworking of Camp David approach which is needed to win it a irbroader spectrum of Arab

In the region itself the U.S. will do well to build upon the helated success of Mr Philip Habib's mediation, on his ability to persuade a range of Arab states to accept the dispersed PLO, and on the marked contrast between the capacity of the U.S. to influence events and the incapacity of the Soviet Union to do anything to lessen the humiliation inflicted on the

in Inaction could well prove humiliation has tended to be is a case in point. The com- would find hard to reject.

the devastation in Beirut has over the Palestinian problem, ended and the first contingent the new presence of PLO units in the Arab countries which will

Paradoxically it is the Arabs, problem. This is not another despite their abject failure to react decisively to the invasion of Lebanon, who have the greatest opportunity to make something out of the disaster. For the first time in years the Israelis are firmly on the moral

therefore, for a fresh attempt to convene an Arab summit and to demonstrate an Arab consensus behind a more explicit version of the proposals put forward by King Fahd of Saudi Arabia. This would have to recognise Israel's right to exist and also the Palestinian right to a state on the West

The PLO, too, need to take the initiative in persuading the U.S. that withdrawal from Beirut marks the end of their military campaign against serious diplomacy. If Washington is to concede that the PLO is the legitimate representative PLO will have to satisfy the criteria laid down in the Kissinger memorandum 1975: recognition of Israel's right to exist and acceptance of

also have to be amended

It is a tall order by past standards of Arab co-operation. But the chastening experience Arab impotence over Lebanon, combined with the fears sown by the Iranian campaign against Iraq may well have concentrated Arab minds.

National Charter of 1968 would

There remains a great divide between Israel's minimalist interpretation of the Palestinian autonomy described in the Camp David agreement, and the Palestinian state demanded by Arab nations still wary of admitcostly to U.S. interests. Arab ting that Israel has a right to humiliation has tended to be survive at all. A completely -followed by Arab backlash and fresh initiative by the U.S., and instability in Arab states: the a peace offensive by the Arabs, Egyptian revolution of 1952 might begin to bridge that gap after the Israeli victory in 1948 and create an offer which Israel

# Dumb insolence on the shopfloor

awaits a decision by the electricians' branch on whether or not they will pay the small fine and Publishers Association against Mr Sean Geraghty, the branch's

competence of the court over a been heard. morally emotive issue such as a sympathy strike for health service workers, the the legislation -Mr Prior's 1980 Act. of course. not Mr Tebbit's Bill - has already bedded down. It can duced by Mr Heath in 1971.

the sympathy has been of a bedding down of what now limited kind-a day here for one seems likely to be only the first group, a half day or a lunch- third of the Government's emtime picket for another. Still, a ployment legislation of this parday's pay lost is £20 or £30 out liament does not mean it has of a family budget: in some put down roots strong enough it could also mean disciplining when it blows.

the unions; it is unemployment been tested and that Tebbit's law will probably begin life Oddly, while Mr Geraghty was demonstrating the limits of Fleet Street's defiance publicly. Mr Frank Chapple, his Following on from Mr Heseltine's more celebrated anti-Government outburst. Chapple corrected an earlier assertion by Mr Nigel Lawson. the Treasury Secretary, to the asserting that it was merely one of dumb insolence. Dumb inso-lence is only dumb when the whips are cracking: when they a union branch in such an indus- are put away, it finds a voice. try is willing to recognise the the more bitter for not having

### Challenge

The fact that it is fear of the dole rather than respect for the law which restrains the unions also be argued that the use of 15 an important difference, even the normal courts-in this case if it produces, in the short run. just down the road from Fleet the same result. For when the Street-is clearly a much better economy picks up, or when the tactic than the elaboration of a fear is replaced with active renew instrument such as the sentment, the law may be Industrial Relations Court intro- exposed to a challenge more fierce than any seen in this

though latent, is still the It is perfectly true to say that greatest in civil society. The

It would be an ideal moment,

and the beginning of the Palestinian people, the Security Council resolutions 242 and 338. The Palestinian

GENERALISATION on indust and black marks, even the sack. trial relations which take Fleet That is why it has been the Street as their instance are more stronger, better paid and more than usually prone to error. secure groups which have been This is especially the case to the fore, but it is also a reawhen our instance—the 24-hour son why employers cannot strike by Fleet Street electricular count on the ambiguous win for cians two weeks ago-still the NPA being a victory for all. For, it is not the law which has dampened militancy among large costs arising from the Dole queues 3m long have enaction taken by the Newspaper sured that Prior's law has not

Militancv The electricians went to court and fought the action: the logic general secretary, was defining of that initial recognition of the the, mood of the workers pricourt's competence in the matter vately to Government Ministers should lead them to pay its at the last National Economic penalty. That is notable, given: Development Council meeting. (a) the militancy of the branch, one of the few far left pockets within the Electrical and Plumbing Trades Union; (b) the traditional readiness of print unions to take a strong stand; and (c) the apparent eagerness of effect that the shopfloor mood many in the TUC—especially was now one of realism by martyr for the cause of Tebbit-It can be argued that if such

But that is all which can be country since the war—includargued with any confidence. The ing the events of 1972 and 1974. Prior Act, which was concerned above all the secondary every battle with employers and (including sympathetic) action the Government since 1979: has not deterred many thousands their militancy has largely been workers, engineers, public ser- campaigns have amounted to vice workers and others from little. But employers and taking limited action in support Government cannot assume that of the health service workers, these lost battles mark a final and it has not encouraged any retreat of union power. The employers other than the NPA unions' to do anything about it.

such as the civil service to withstand a storm, if and

The unions have lost almost mineworkers, railway rhetorical and overblown; their collective strength.

was President Ronald Reagan's verdict on the past seven days as he left at the week-end for a delayed two-week holiday at his Californian ranch, "flying high," in the words of one of his senior aides. With some favourable econo-

COTHE MOST rewarding

week we've had." That

mic news at last and a record Wall Street rally-not to men-tion the start to the PLO evacuation from Beirut and a deal with China on Taiwan-Mr Reagan clearly had cause for satisfaction. Most gratifying of all, though, was Thursday night's dramatic Congressional vote in favour of his \$98.3bn three-year tax bill, giving him an unbroken string of budget victories and a dazzling reaffirmation of his. powers of political persuasion.

If there was a fly in the ointment, it was the knowledge that 89 Republicans in the House of Representatives had voted against his bill in the most serious right-wing rebellion of his administration. The White House is hoping that the twoweek Labour Day recess will allow passions to cool. But the fact remains that Mr Reagan won his victory at the expense of opening up a gaping rift in the Republican Party over fundamental issues of economic

The economic conservatives who until only a month or so ago were his staunchest supporters are feeling bitter and betrayed Pure supply-siders like Congressman Jack Kemp of New York argue that the bill represents a "dramatic U-turn" -if not the total and shameless abandonment of the whole tax-cutting theory of Reagonomics and the way it has been practised over the past 20 months.

Mr Reagan has spent most of the past three weeks insisting —to individual congressmen, local audiences and finally the nation-that this is just "plain hogwash." Indeed, he refuses even to call his revenue-raising measure a tax increase. Rather. he says, it is a tax reform, largely designed to correct unfairness in the present system. Even with its passage, he maintains, Americans will still benefit from the largest tax cut in history—to the tune of all, he has been drumming out stage the message that the bill reprethe overall philosophy and

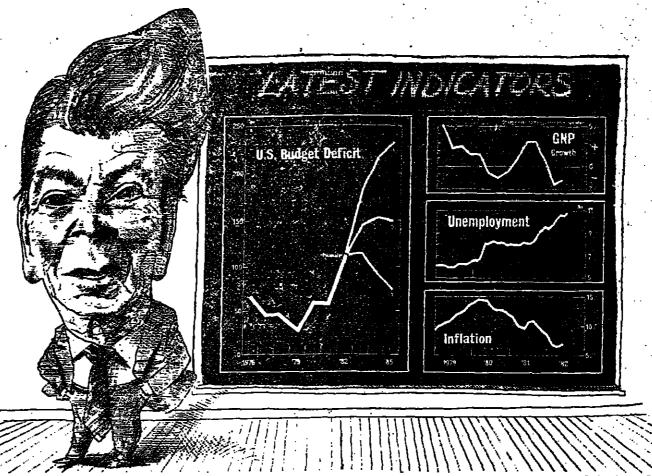
policy on which he was elected. The bill is simply a refinement programme initiated last sumas if it would have been neces-

Yet this is the same smiling Ronald Reagan who only last of the biggest political risks he January was solemnly proclaim- has taken so far. By committing ing in his State of the Union his prestige and that of his office message that higher taxes did to the battle, he ensured that not mean lower budget deficits failure would have raised higher government spending tical authority

A taxing victory for Reagan

THE U.S. ECONOMY

By Reginald Dale, U.S. Editor, in Washington



Budget deficit forecasts: (1) estimate in June hudget resolution assuming no corrective action taken; (2) estimate by independent Congressional Budget Office, assuming Reagan tax and spending programme implemented; (3) Administration's official forecast, assuming Reagan programme implemented.

and less private investment. He backs of the American people." His existing policies of tax and spending cuts would reduce the deficit and, in time, climinate it altogether. Mr Kemp and his fellow supply-siders acclaimed that speech with as much vigour as they are now castigating the tax bill.

What worries them is the abandonment of one of the most sacred principles of Reaganomics and the precedent it may have set for the future. They say that however the bill is described, it still takes almost \$100bn out of the private economy at an extremely deli-\$355bp over three years. Above cate economic and political

To an extent. Mr Reagan himsents absolutely no change in self let the cat out of the baz. He admitted publicly that he giving the hill his backing, and of the vast three-year tax-cutting initially had no intention of mounting a major personal cammer. Mr Reagan argues—almost paign for what he himself as if it would have been neces- acknowledged to be an unpopusary all along. However, he lar measure in an election year, admits that action to raise It was only when it become electrons admits that action to raise It was only when it become clear above party allegiance and revenue had become essential that the bill was heading for a economic preconceptions "for to reduce budget deficits, so as massive defeat, possibly by as the sake of America." For the to bring down interest rates and much as two to one in the House unemployment and spur econo- of Representatives, that he reluctantly took to the saddle. His decision to do so was one

simply encouraged serious questions over his poli-

The winning over of indivi- were laid in Congress, the Management and Budget (OMB) did not want, he said then, to dual congressmen, one by one, administration was predicting "balance the budget on the proved far more difficult than in an early, strong economic the heady days of last summer. when he scored his first speciacongressional budget victories. In the end, a quite different conlition emerged.

Last year, with the Republican party united behind him, he only needed to seduce a relatively small number of rightwing Democrats. This time. the unusual support of

recovery, helped along by tax ruls or the expectation of them. People would work harder and save more. The money saved would go, into investment in modern industries where the workers would be working harder under the incentive of the tax cuts.

The tax cuts would be matched by spending cuts, re-

### The administration has been plagued by scepticism over its budget deficit estimates

Democratic House leadership. he had to entice a much larger number of his own dissenting Republicans into the fold.

If there was a dominant theme it was the need to rise Democratic leaders, this was a relatively easy task giving them Reaganomics had failed and that the Democratic party was worst excesses.

Just over a year ago whenthe wrong:

ducing the weight of govern rates brought down, and the money somehow found for the biggest defence build-up American peace-time history.
With the foundations of the new programme laid, a new wave of confidence would sweep through Wall Street and the business community.

Reality, of course, has been cruelly different. It is enough to take a look at the administration's official economic assumprallying to the support of a bill tions in the July 1981 that would remove some of its mid-session budget review, and compare them with this July's, It was not a hard case to make, to see how far things have gone

In July 1981, the Office of

was assuming an increase in Gross National Product in 1982

of 3.4 per cent. This year it puts the same figure at -0.7 per

Average unemployment for 1982 was forecast as 7.0 per cent. It is currently at a postwar record of 9.5 per cent, with the expectation of an average 9.2 per cent for the year Last year, interest rates of 91-day treasury bills were projected at an average of 10.5 per

cent for 1982. This year the same figure appears as 12.0 per On the inflation front the news is better. Last year's fore-cast of a 7.0 per cent year on price index in 1982 has been trimmed back to 5.9 per cent reflecting the administration's

main economic success story so But the most remarkable contrast of all is in the two budget deficit forecasis. In July last year the OMB estimated the fiscal 1982 deficit at \$42.5bn. a the administration admitted at the time to be higher than it wanted. The same figure this year is \$108.9bn, rising to \$115bn in 1983-figures that even government officials admit

to be unrealistically low. administration in the past year. It has been the cause of much

certainly over-estimated the influence of the tax bill on the dramatic behaviour of Wall Street last week. The other factor in the hudget equation, a further \$280bn of spending cuts over the next three years, is only just beginning to win congressional approval.

A first \$30hn of the cuts went

administration, typically, almost

through last week, and Congress will probably live up to its June commitment to supply its share of the total \$280bn. But almost half of what remains to be found is not subject to congressional action.

Much of the rest must be found by the administration the the form of money saving schemes such as a crackdown on waste and fraud, better programme management and revenue-raising activities like selling offshore oil and gas concessions. Many private economists are doubtful whether the \$280bn total can be reached in this

Another major element of un-certainty is the behaviour of the economy in the months sheed. Relatively minor movements in unemployment or interest rates, over which neither Congress nor the administration has any direct control, can have a dramatic effect on the deficit.

The administration is, once

again, making optimistic noises about the imminence of economic recovery-although, as Mr Reagan said in his televised appeal for support last week, nobody should expect a "sud-

den boom or upsurge."

Mr Donald Regan, the
Treasury Secretary is nudging the Federal Reserve to open up the throttle on the money supply between now and the end of the year to help the longawaited upturn along, it would be nice for the administration if real signs of recovery, accompanied by lower interest rates and at least some downturn in unemployment, could materialise in time for the mid-term November elections. Mr Reagan's supporters he-

lieve that the tax hill's passage will help the Republican cause in the elections, despite the unpopularity of tax increases, by reinforcing the President's "leadership image" which they regard as the party's greates! electoral asset.

What is clear is that Mr Reagan will have to make a serious bid to mend fences inside the Republican party when he returns from his Califorms mountain-top next month.

He has made it clear, however. that he does not intend to mak ion many concessions to bring the rebels back to the fold. He continues to maintain that what he has undertaken is no more than a "mid-course correction" and not Mr Kemp's U-turn. That is largely a matter of perception—the truth hes sumewhere in helween. He nas ficit estimates has plagued the has not launched the American economy in a radically new direction. As his Republican of Wall Street's lack of confi- predecessor Mr Gerald Ford, put dence in applied Reaganomics, it the other day, there is noth-It remains to be seen whether in a like the Presidence of the any scepticism will be dispelled. U.S. for teachiling a man a little by the tax bill's passage. The realism.

### Men & Matters

### Forge politics

Sheffield steelmen were not, on the whole surprised when Dr Donald Harwick, the strong man of the city's private steel sector, emerged as chairman designate of Sheffield Forge-masters, the new public sectorprivate sector company that has risen from the Phoenix Three negotiations with British Steel.

But what has raised Yorkshire evebrows is that Hardwick is to be a part-time chairman of the new venture which is regarded as so crucial to future relations between the two sec-tors of British steelmaking. He will also continue in his job as chairman of the thinned down. but still viable. Johnson & Firth Brown steel division.

Hardwick moved into the steel spotlight ten years ago as managing director of Firth Brown, one of the two companies making up the new Sheffield Forgemasters. He has a distinguished record as a metallurgist and of late has shown equal skill in manipulating the tangled strands of politics that

surround the steel industry. He served a long-than-usual term as president of the British Independent Steel Producers Association, stepping in to take over from his old Sheffield rival Peter Edwards when Hadfields went into the Lonrho group and the later's base disappeared overnight,

As BISPA president Hardwick has been publicly discreet but privately strong. He has shown himself to be a man with little taste for the social side of the steel business. For instance, although a member of Cutlers' company he has shown no desire to join the queue to finance sector. be a future Master Cutler.

Chamber of Commerce The only other Sheffield been suggested some small Forgemasters appointment and depositors in SIB sue the Manx nounced so far is that of the government for failing to super. The aim of the European Coal are: water buffalo. rhino, whale, managing director. Clarke, the energetic general endangering their deposits.

manager of the British Steel River Don works, Sheffield, has heen selected over the Firth Arthur Hogg. However, steelleft out of the ultimate management picture.

### Bank draughts . . .

The refusal of the Isle of Man Government to hold a pub-lic inquiry into the collapse of the Savings and Investment Bank (SIB), the island's biggest independent bank, has not island. Many Manxmon believe that heads should roll as a of the embarrassing bank failure.

Bill Dawson, the island's Treasurer for the past three years, has been in the firing line because it was his department which was responsible for supervising SIB and should have been aware of the problems at a stage when a rescue could have been mounted.

But Dawson is a civil servant. There is a growing feeling on the island that the problem lies with his political masters who seemed unprepared to commit enough money to pay for a highpowered bank examiner until it was too late. Applications for the £25,000 a year post now about to be created do not have to be in until the end of this month.

Some Manxmen believe that Percy Radcliffe, who took over as the island's "prime minister" last December, should shoulder the real blame. As former chairman of the Finance Board he presided over the rapid and Sheffield's still - prestigious generally unsupervised expansion of the island's private

So far neither Radcliffe nor Neither has he had much to do any other Manx politician has favoured archipelago. with groups like the Sheffield shown any wish to step down. But that could change if, as has

### ...and air ways

Jersey and Guernsey will be men do not expect Hogg to be fielding a strong team-their two Bailiffs, Sir Frank Ereaut and Charles Frossard respectively-at the Home Office this week to argue that Britain's freedom of the skies policy does not suit the Channel Islands. Finance Corporation. Traditionally the islands have

relied heavily upon year-round The islands complain that the

charter flights which the islands have made perfectly clear they do not want. They have a travel there on a package tour. Not a fitting transport system for the well-heeled hankers who iet in and out of the Channel

With the rising cost of air travel the islands have relayed sold it and started anew because their opposition to any charter operations whatsnever But they are still firmly opposed to charter competition for the pirlines on tiolubarts: the islands" "lifeline" routes from Heathcow. Gatwick. and Southampton.

The islands authorities regarded it as the last straw when, carlier this year, the CAA gave Britannia Airways permission to yards, and industrial sites in the run a series of charter flights to-The charters did not finally

materialise. But the islands regarded Trade Secretary John Biffen's refusal to intervene as ar omirous sign. Now they feel it is no longer

safe to allow air policy to be decided over their heads from London. They want more 'say" about who flies to their

### Private eye

### for ex-miners and steelworkers. Nevertheless, the fund is to help market some sophisticated

by electronics systems. The newly-formed Arrow Security Systems is being backed by £35,000 from the ECSC together with a 15 per cent equity stake held by the Industrial and Commercial

director, learned the security services provided by scheduled business as a counter-intelligence officer and as a security adviser to Whithreads.

Civil Aviation Authority has Employing former miners and been granting licences for steelmen he has developed an Employing former miners and electronics system which will monitor industrial premises, offices, and perhaps banks in recurring nightmare of ending due course, from a central un with a Majorca-like situation security station in South York-where you can virtually only shire (to print the actual near to industrial espionage, I am warned).

Sutcliffe ran a successful company providing security guards until this year. Then he was fascinated by the potential to replace people by a piece of microchip technology which has been developed in the U.S. Essentially it converts video camera signals into sound signals which can be sent cheaply over long distances The Yorkshire centre is now

haulage depots, exposed storage north of England, using British Telecom standard lines. Sutcliffe says the advantages of his Arrowguard system is that it is cheaper than real live security guards and "doesn't leave the premises to go to the

monitoring factory premises.

pub or let its friends in for a cup of lea." One drawback, though . . . it won't salute the chairman.

### Long-serving

advertised by a New York store David vise the hank properly and and Steel Community redun- see turtle - and antique

Among the leather wallets

# MALAYSIA MINING CORPORATION BERHAD

### ANNOUNCEMENT TO SHAREHOLDERS

For the second tin export control period from 1st July to 30th September, 1982 your company and its wholly-owned subsidiaries have been allocated the following quotas:-

	Quota of Tin Concentrates	Normal
Company	(Tonnes)	Preduction
Malaysia Mining Corporation		
Berhad	360.54	53.8
Bidor Malaya Tin Sdn Berhad Lower Perak Tin Dredzinz	165.12	53.2
Berhad	32.71	24.7
outhern Kinta Consolidated (M) Berhad	196.62	70 8
Southern Malayan Tin Dredging (M) Berhad	273.03	49.5
•	1078 07	

view of the severity of the cutback and the impact of low tin prices, the group's production policy has been re-examined to maximite cashflows and profits whilst minimising hardship to the employees on the various mines.

In the light of these constraints, it has been decided to close down the following dredges temporarily with effect from the dates indicated until such time as there is a significant improve-

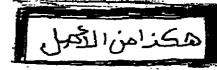
ter ref ile refe brendelder.		
Company Malaysia Mining	Section/Dredge Kampong Gajah	Shutdown
Corporation Berhad	Section	•
	No. 4 Dredze	Angust 17, 1982
Bidor Malaya Tin Sdn	-No. 2 Dredge	Augus: 16, 1982
Berhad	—No. 3 Dred⊇e	August 17, 1982
Lower Perak Tin	•	
Dredging Berhad	-No. 1 Dredge	August 17, 1992
Southern Kinsa	Bernam Section	•
Consolidated (M)	No. 1 Dredget	
Berhad	5. Kampar Section —No. 2 Dredge	August 17, 1982
Southern Malayan Tin	Tanioung Tualang	

Dredging (M) Berhad -No. 5 Dredge August 18, 1982 Apart from Southern Malayan's No. 2 dredge which was closed down on July 29. 1982, due to unprofitable operations, the remaining dredges in the group will continue in production and no retrenchment of workers is envisaged at this stage.

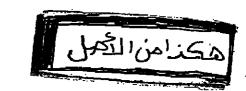
On behalf of the board

Director

Kuala Luman August 20. 1982

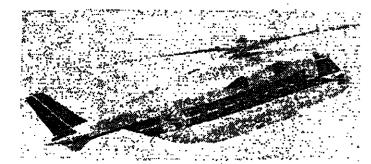


# FINANCIAL TIMES SURVEY



**AIRCRAFT** 

Monday August 23, 1982



An artist's impression of how the civil version of the projected new joint Anglo-Italian (Westland and Agusta) EH-101 heavy helicopter will look. The aircraft is being designed and built as a military replacement for the Sea King anti-submarine warfare helicopter, but the commercial version will be built alongside it to spread the costs and widen the ultimate market.

# Aerospace

Western world aerospace activity has suffered from the recession, especially on the civil side. The outlook, however, is for over \$600bn of business through the next decade for commercial and military aircraft and engines, missiles, spacecraft, avionics and equipment of all kinds

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# Industry resilient despite setbacks

By MICHAEL DONNE **Aerospace Correspondent** 

THE WESTERN world's aerospace industries go to this year's Farnborough Air Show (September 5-12) confident that despite the severe ravages of the recession, especially in the civil market, the longer term outlook for their products remains good provided they can survive their current problems.

For the Swedish All Associated to the Swedish All Associated to the U.S.; and the "next generation trainer" for the U.S.; an

The array of civil and military aircraft, engines, guided weapons and electronics and other equipment of all kinds that will be on display at Farnborough will indicate an industry that is resilient, P-110 fighter in the UK, which innovative and forward-looking despite the serious may well become a collaborative innovative and forward-looking despite the serious venture with West Germany and setbacks of the past two to three years as a result of Italy; the fibn Anglo-Italian world economic difficulties.

outstanding commitments) and in some cases (such as Rolls-

Royce) have been obliged to lay

On the military side, how-ever, business activity remains buoyant. Despite budgetary re-

straints in some countries which have caused some programmes.

such as the Tornado multi-role

pressures for sustained or even increased spending on conven-

The latter have been most (Airbus Industrie in Western severe on the civil side of the Europe is one of the few that industry. The heavy losses in is expanding production to meet curred by the world's airlines as a result of the decline in air travel and soaring costs have in turn led to a marked fall in the inflow of new orders and in some cases even to cancella-tions or deferrals of orders for new-generation equipment placed as recently as two to three years ago.

One immediate result of this combat aircraft, to be stretched has been that most commercial out, overall order books remain aircraft and engine manufac- at a high level. turers have been obliged to run down their production rates

weapons in the Western Alliance and a continued high level of interest in military aircraft and their associated weapons and equipment in the countries of the Third World are both tending to ensure a steady inflow of new military aircraft orders, although competition is exceptionally fierce.

New military aircraft programmes now coming to fruition include the 400 aircraft in the AV-8B Harrier II programme for the U.S. Marine Corps (336) and the RAF (60) with four development aircraft; the new JAS multi-role combat aircraft for the Swedish Air Force; the recently won by Fairchild and Garrett in the U.S.

On the way are such prostailer for the U.S. Navy, with the British Aerospace Hawk now the most likely ultimate winner; and in the longer term the likelihood of some kind of supersonic vertical take-off fighter for the mid to late-1990s.

perhaps also a Viper engine replacement; major new missile programmes, such as the British Aerospace Sea Eagle long-range air-to-surface anti-ship missile, and the Advanced Short Range Air to Air Missile (ASRAAM)

are on the way.

There is also a burgeoning

tional, as opposed to nuclear, business in spacecraft of all kinds, but particularly in the manufacture of communications satellites of which large numbers are expected to be needed throughout the rest of this cen-

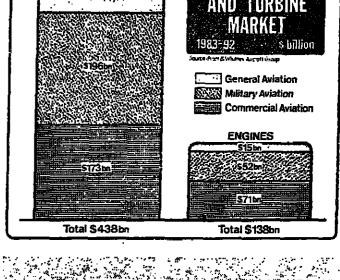
the manufacturers is now more one of survival. through the accumulated backlogs of orders for the new generation of airliners, while waiting for the economic up-turn it is hoped will result in increased air travel and a revival of demand for aircraft.

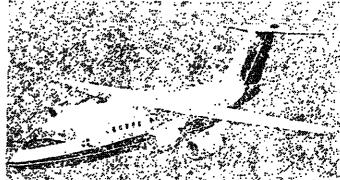
Even on the depressed civil side, however, there is still considerable long-term optimism. Apart from the new generation of airliners already in production, such as the Boeing 757 short-to-medium range and 767 medium-to-long range airliners, and the rival Airbus Industrie A-300 and A-310 in Europe, together with the smaller (but nonetheless significant) British Aerospace 146 four-engined regional air-liner, there are many ideas for the future.

These include plans for eventual derivatives of all of these and other existing air-craft types to fill a wide range ngater for the mid to late-1990s.

New engines, such as the development of the Turbo-Union RB-199 for the P-110 fighter, and perhaps also a Viner engines. But the most immediately significant venture is the projected 150 - seater short - to medium range airlines. which several airframe and engine manufacturers in both Europe and the U.S.—and indeed in other parts of the world including Canada, Aus-tralia and Japan—are now

focusing much attention.
In fact most manufacturers'





The British Acrospace BAe 146 four-engined regional airliner is now undergoing its flight test programme. The aircraft, which involves an investment of over £350m by British Aerospace, is being hullt in two versions—the Series 100, carrying about 80 passengers, and the larger Series 200, carrying up to 109. The test programme is aimed at winning a Certificate of Airworthiness by the end of this year, clearing the way for deliveries to customers in early 1983.

substantially better times over will be an even bigger demand the pext decade despite today's for some 21,200 aircraft of all difficulties.

types, worth about \$196bn. of

gest jet airliner builder in the world, still believes that there will be a demand for something around \$126bn of new jet airliners between now and 1992. covering just over 4,000 aircraft. Pratt and Whitney, the world's about and military aircraft and engine market between 1983 and 1992 of about \$438bn (in 1982-83

Of this, about \$173bn will be for some 4,050 commercial air-liners, creating a demand for some 12,000 turbine engines, total forecast volume of Wesworth about \$71bn.

types, worth about \$196bn, of Boeing, for example, the big- which the engine requirement will be for some 47,000 units, worth about \$52bn.

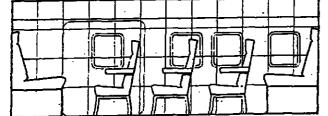
In general aviation (which includes business, executive, leisure and other flying) the overall market will be worth largest aero-engine manufac 37,500 aircraft, of which the turer, is also optimistic. This engine component will be worth company forecasts a total civil about \$15bn for some 74,000

If to these figures is added the estimated \$100bn that is likely to be spent by the U.S. and the rest of the world on tactical guided weapons of all worth about \$71bn. tern world aerospace business
In the military market there of all kinds rises to the stag-CONTINUED ON NEXT PAGE

When we designed the new Westland 30, we wanted to build a helicopter that was so versatile it would meet your needs, whatever field you're working in.

We succeeded.

The secret of our success is the 460 cu. ft. of space inside. Because it gives you the freedom to choose from a wide variety of cabin layouts.



Suppose, for instance, that like British Airways Helicopters, you wanted to carry commuters on a scheduled passenger service.

All we would need to do is to fit the Westland 30 with our standard seating plan. That way, you could carry seventeen

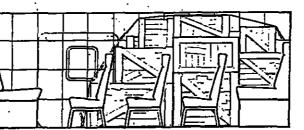
people in armchair comfort. There's so much room, they can even stand up and move around.

And that's a rare luxury in a helicopter. We have also built 74 cu. ft. of luggage space into the back, so they won't keep tripping over their cases. In fact, they'll feel so comfortable they could be forgiven for thinking they were travelling in a 737.

That takes care of commuter transport. But what about offshore support?

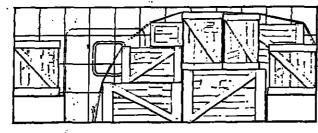
After all, you might well need to ferry oilmen to and fro over the North Sea.

In which case, we can offer you a variety of options.



One of the strengths of the Westland 30 is its rapid turn-round facility. That is to say you can detach the seats and fill the cabin with anything from frozen peas to spare parts.

All in the space of five minutes. No other medium-capacity helicopter can give you such flexibility.



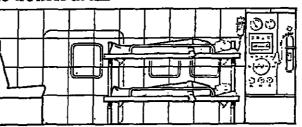
If, on the other hand, you're operating freight services, you will find the new Westland 30 takes a good deal of weight off. your shoulders.

Using the series of anchor-points in the floor, you can secure and transport almostany kind of cargo

Rinning an emergency service like the Red Cross is a different matter Say, for example, you wanted to fly earthquake victims from the scene of a disaster to a medical centre.

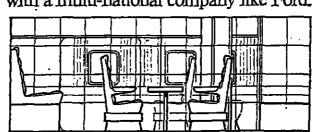
There too. the Westland 30's spacious cabin will come to your rescue.

It holds 6 standard hospital stretcher cases and up to 8 seated casualties with no trouble at all.



And it's so tough and adaptable inside it can work equally effectively for police, fire and ambulance services.

But the priorities would differ again with a multi-national company like Ford.



It might then be a question of rushing top executives to meetings in places like London, Paris and Brussels in the style they're accustomed to.

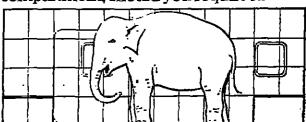
We've already catered for that.

We've designed a luxurious VIP cabin. layout for six to ten people.

It can come complete with a galley, a toilet, communication systems and airconditioning.

There are optional extras such as a cocktail cabinet and swivel armchairs.

We can even fit a separate private compartment, should you require it.



Of course, you may have very different ideas about what you want to use the Westland 30 for.

If so, why not get in touch with us? We'll be only too happy to design a



WE WON'T SELL YOU A WESTLAND 30 UNTIL YOU TELL US WHAT TO DO WITH IT.

# Confidence in long-term outlook unshaken

ALTHOUGH THE world's liner market by 1984. (although major commercial aircraft it will remain a major builder manufacturers are now passing of military transport aircraft. through their worst-ever period for the inflow of new orders, and are rapidly working through the backlogs they had accumulated prior to the airline recession, they remain confident that, in the long-term, the outlook for new airliner sales

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125 fanjet-powered business aircraft

remains good.
At present, however, their primary objective is to survive the depradations of the recession, which has severely eroded world air travel, driven many airlines into severe financial losses, and effectively dis-couraged them from placing orders for new equipment.

The extent of the decline can be gauged from the fact that during the first six months of this year, the world's biggest from the present 4.5 a month jet airliner builder. Boeing of to reach eight a month by 1984, the U.S., received new orders to meet existing contractual for only 33 jet airliners, com-pared with orders for 132 air-craft placed in the first six months of 1981.

For other manufacturers, such as Lockheed, the situation

and even retains an interest in possible future new civil airliner developments).

For McDonnell Douglas, it is the KC-10 tanker-transport ver-sion of the DC-10 from the U.S. Air Force that is keeping the DC-10 airliner production line running, otherwise with the current paucity of new orders even that company might have been obliged to reconsider its widebodied jet production plans.

But Airbus Industrie, the West European airliner manufacturing group (in which British Aerospace has a 20 per cent stake), is currently increasing its production rate of A-300 and A-310 Airbuses—

With an order book for 506 aircraft (323 250-seat A-300s and 183 of the smaller 200-seat through world markets in reable efforts into its sales campaigns, and where air transport as a whole has been

less affected by the recession. only the advent of orders for Production of the Airbus could the KC-10 tanker-transport verbeyond 1984, if demand justifies, but since Airbus Industrie itself has experienced a marked slowing down in new orders in recent months, it seems unlikely that at this stage production will be pushed up to that level.

### Airlines

So far, there is no sign of any significant improvement in the rate of inflow of new orders. Airline losses continue to be heavy, traffic is improving only marginally, and even that is not sufficient to generate the revenue needed to offset rising costs and create funds for new

The general view among the aircraft builders is that it may be another year before there is any significant return to confidence among the airlines, to encourage them to order the new jets that both they and

For the longer-term, the outlook remains brighter. Apart from the recession and the impact of high interest rates upon aircraft financing, none of the basic technical factors that were conditioning the market up to a year or so ago have changed. It remains true that many of the jet airliners in the current world scheduled airline fleet are ageing, and will need to be replaced within the next three to five years.

Fuel prices may have stabilised in recent months, or even come down a little, but it is accepted that the long-term trend must still be upwards. generating before the end of this decade a requirement for increasingly fuel-efficient air-

Because of the rising costs in other directions (labour, landing fees, navigation charges and ground handling) there ground handling), there continue to be a need improved aerodynamic efficiency, with reduced weight the use of new materials, to keep down aircraft direct operating costs. again the market for commercial air-

Many of these orders have the manufacturers know they stimulating a demand for the liners could be worth about come from the Third World. where Airbus has put consider- where Airbus has put consider- beyond. the manufacturers know they stimulating a demand for the liners could be worth about 4,050 mew generation of jets that cm hew generat The need for much less noise

will also remain a major factor in airline planning, generating the demand for the new generation of quieter engines.

All these factors add up to the belief, shared by most of the manufacturers, that the long-term outlook remains good. despite the current gloom. Boeing, for example, still believes that up to 1992 there will be a market for about \$126bn of new jets. This will cover some 4.000

aircraft of various kinds, of which Boeing believes that not less than 1.100 will occur in the short-to-medium range widehodied or semi-wide-bodied market (for aircraft like its own 767), and at least another 1,350 in the smaller short-tomedium range narrow-bodied market (for aircraft like its new

More detailed forecasts prepared by Pratt and Whitney the biggest Aircraft Group. aero-engine huilder in the world (part of the United Technologies Group), suggests that

Harrier V/STOL combat aircraft

further breaks this figure down into 570 long-range (win-aisle airliners (like the 747) worth about \$48bn: 1.310 medium-toshort range twin-siste jets (like tine 7671 worth about \$62bn; and 2.170 medium-to-short range single-aisle aircraft (like the 757), worth about \$63bn.

Most manufacturers believe that the recovery will come sometime between 1983 and 1985. In the meantime, the orders emerging are small, and are mainly coming from those airlines whose markets have not suffered so severely from the recession, such as those in the Third World, or countries whose air transport industry is heing deliberately developed as an instrument of social and economic expansion.

In other parts of the world, including the U.S. itself, the manufacturers have been facing the reverse trend of airlines seeking either to defer the delivery of new jets or to cancel orders outright.

Boeing in particular has suffered this problem (which is perhaps one of the penalties

Jetstream 31 commuter and comporate airliner

Sky Flash medium-range air-to-air missile

748 turboprop airliner & multi-role transport

THE COMMERCIAL AIRCRAFT MARKET \$173bn in aircraft sales are likely during the next ten years

Aircraft market estimates 1983-92, in 1982 Shn								
Aircraft	U.S. Units S	Non-U.S. World Units S. Duits S						
Long range	70 6 520 24	500 42 570 42 790 43 1,510 61						
Medium/short range under 200 passengers	950 28 1.540 58	1,220 35 2,170 82 2,510 115 4,656 172						
TATAL MENTALITA	TATA DO.							

Turbine engine market estimates, 1982-92 in 1983 350

Engine thrust class	Units .	200 S2 S.	ies, spa Noo-i	re pa	ris inclu To	
('000 lbs)					- Units	
Over 40	1,700.	14	4,300	32	6.999	46
25-40	2.000°	· .7 ··	2.500	10	4,600	17
8-25	208	3 -	606	. 3	1.400.	- 8
Total	4,500	.25	7.596	45	12,000	71
Source: Prati	w bus t	hitney	Aircra	ft Gr	опр. О	S.

of being the biggest jet builder "7 Dash 7-" and McDonnell in the world), and this is putting a squeeze on its finances. since the development cost of its two new airliners, the 757 and 767, is over \$30n, while the development of the new.

Because of this financial problem, it seems unlikely that between now and the end of this century there will be more than one entirely new type of airliner developed, and that one seems-likely to be the much-discussed "150-seater," for which a gap exists in the market-place and which has aroused the interest of most

aircraft and engine builders and some airlines.
For the rest, it seems likely that the manufacturers will seek to produce derivatives of their existing aircraft. Boeing. McDonnell Douglas and Airbus Industrie are all studying improved versions of their existing types for the future.

Derivatives of the 737, 757, 767 and 747, and the DC-10 and

DC-9, as well as the A-300 and A-310, are all likely to emerge at some time throughout the next 18 years to the end of the century.

The one big exception is the 150-seater, and all three major manufacturers are studying it with competitive ideas—Airbus with the A-320. Boeing with the

Donglas with the D-3300. On the other hand the major engine manufacturers - Rolls Royce. Pratt and Whitney, the three Japanese engine comimproved version of the 737, and Fiat Avazione of Ray—
the Series 300, is also costing are all also discussing possible
several hundred million dollars collaboration on a single engine

for the projected aircraft. But all are agreed that the timing of such a venture has been pushed back. At one stage, 1986 had been canvassed as a possible in-service date, but this has now moved back to late 1987 or even 1988, as a result of the recession, and it is possible that it may be pushed back even further to 1989 or even 1990. At this stage, how-ever, 1987 appears to be the target at which most manufacturers are aiming, and some decisions on who is likely to build what may well emerge by

about the end of this year.

But the cost of such an aircraft will be heavy—amounting to about \$2bn for the airframe and another \$1.5bm for the engine. It is this which is dictating the international collaboration that is causing so much discussion encouraged. especially in Western Europe. by governments who know that oner or later they are mine to be asked to help finance such a venture through launching

Michael Donne

# Resilient industry

CONTINUED FROM PREVIOUS PAGE

cering total of \$538bn

it is estimated the U.S. alone will spend over the next decade on strategic missile systems Europe) for the projected 130-(much of which work will be scater airliner. conducted by the aerospace industry), and the growing the helicopter field, with volume of space activities, the Sikorsky expressing strong overall volume of available Wes- interest in international ven-

rises to well over \$600bn. Much of this money will of course be spent inside the U.S. by the U.S. armed forces, for their own re-equipment. But there will still be enough left over for the rest of the Western world's aerospace industries to pick up a good living, provided they remain lean, tough and

competitive. Estimates for aerospace pro-duction, both by size and value, the Soviet Union and its allies over the coming decade are unobtainable but are anyway largely academic (beyond demonstrating the size of the Soviet industry) simply because that country imports very little in aerospace hardware, apart from its continuing interest in high-thrust turbo-fan engines and in items of advanced hightechnology aeronautical equip-

Whether these estimates of Western aerospace business will be precisely achieved remains to be seen. But it is clear that most manufacturers are not only looking for such an improve-ment over the next-decade but are actively preparing to meet -and even, where it is within their power, to make it possible. They are supported in their

belief by the fact that despite the recession many of the underlying factors that even as recently as two to three years ago were generating a new demand for commercial aircraft have not changed—the increasing age of much of the present equipment used by the world scheduled airlines, the need for ever-improving fuel efficiency through engine and aerodynamic improvements and the need for reduced noise. On the military side, despite

pressures for disarmament and budgetary constraints in some countries, the overall trend in military arroraft procurement remains upwards and seems likely to continue that way for the foreseeable future. But the pattern of the

industry has been changing significantly and this is likely to be seen at Farnborough more so than ever before, in the plethora of international collaborative arrangements either aiready under way on civil and military ventures or planned for the future.

International collaboration is not new, especially in Western Europe. But the most significant change is that it is now spreading much more rapidly to the U.S., where there has been an upsurge of interest in international ventures.

hetween Boeing, Italy and industry,

Japan on the 767 airliner and If further to these figures is now also in the search for added the \$75bn to \$125bn that collaborative partners by both Boeing and McDonnell Douglas (as well as Airbus Industrie in

> It is also manifesting itself in tures, covering both current and future models; in the military field with the U.S. Marine Corps procurement of the AV-8B Harrier tomthy developed McDonnell Donglas and British Aerospace; in the U.S. Navy's interest in the British Aerospace Hawk (also involving collaboration with McDonnell Douglas) for its next-generation trainer programme; and in the talks between Rolls-Royce, Pratt and Whitney, Japan, and others on a new engine for the 150-seater airliner.

Yet another significant trend is towards greater use of denvative aircrast and engines rather than involvement in the very heavy costs of developentirely new ventures. While the latter may from time to time become necessary. where major advances in technology are required, the tendency now is consistently to update what is already available. This is true both of civil and military aircraft and engines.

In the civil field, in view of the parlous financial condition of the airlines and the very beavy costs of developing new airliners and engines, it seems likely that most of those now on offer will remain the basic types through to the end of century. stretched or modified in other ways to meet the changing range and payload requirements of the airlines as well at the demands for ever better fuel consumption

It seems likely that only one major new airliner will emerce in the foresceable futuremuch-vaunted 150-seater and 72 associated engine.

The market for such an aircraft (about 1.000 units or more over the next decade) is so great, with no other existing aircraft fitting the gap, that a new aircraft is really required. But once it is developed the entire range and payload spectrum will virtually be filled. with only a few exceptions of comparatively limited market potential-and even those are likely to be met by variants c: existing models.

It is this likelihood that the 150-seater will be the last major new civil airliner this century that is generating the current search for new international partners, with the possibility of new international consortia emerging before very iong. Just who will link with whom in this international dance remains to be seen but whatever groups emerge are likely to remain together for the rest of this century, if not for longer, with consequential far-reaching This has already become influence on the shape and apparent in the collaboration scope of the world aerospace

was much worse and, indeed, cent years, capturing many orders that its arch-rival, Lockheed has decided to pull out of the big commercial air- Boeing, thought it would win. BAe 146 fanjet-powered feederliner Rapier ultra-low-level anti-aircraft missile Jeguer tactical strike aircraft **Hawk** advanced navel trainer Communications satellites - L-Sat multi-role comsat Seawolf close-range ship-defence missile











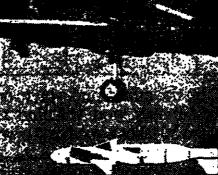












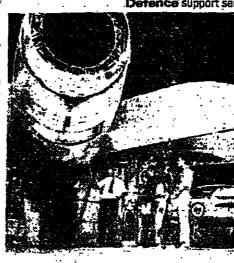
Sea Skua helicopter-launched anti-ship missile

**Defence** support services.



Sea Dart medium-range ship-defence missile







Like most wars, on whatever scale, the Falklands conflict provided a practical testing ground for much military technology still in the development stage. Our Science Editor, David Fishlock, here describes some of the valuable information flowing back to Britain's Royal Aircraft Establishment at Farnborough

# Research centre grapples with testing demand

in the system of technical was the Falklands war, in which less emphasis on aircraft them-advice supporting the Ministry numerous RAE developments selves and more on weapons and of Defence's £2.6bn procure nearing completion found themment programme for air equipment in 1982-83. It also supports Britain's civil acrospace activities, from new airliners and former RAF fighter pilot and fying instructor whose participation in the European Space Agency's planned carth resources satellite, ERS-1.

The air systems establishment has experienced two traumatic developments since the last show. One was the return of Tom Kerr for his third tour with a mission to implement

supersonic flight testing programme in the 1950s and as head of the research group in weapons department in 1970. Before his latest return he was director of the National Gas Turbine Establishment, Pyestock. Mr Kerr's new job included

R and D policy change, putting operate it for experimental less emphasis on aircraft them flying. their delivery systems.

instead by industry under the recommended 5 per cent contract. Air equipment R and level.

D was less vulnorable D was less vulnerable to this

THE Royal Aircraft Establishment, Farnborough, host to the Air Show, is Britain's biggest defence R and D. and by defence research and development centre and the linchping ment centre and the Rae's payroll by cutting the Rae's payroll by defence R and D. and by defence R and D. and by defence research and development centre and the linchping to continuing to c

The more positive side of Strathcona includes the strengthening of long-term basic The Strathcona report called strengthening of long-term basic for much project work as well research. So far Kerr has raised and former RAF flighter pilot as laboratory services provided it by 2.5 per cent of his budget and flying instructor whose by the defence R and D and hopes to double the proporand fiying instructor whose by the defence R and D and hopes to double the proportions experience at Farnestablishments to be done tion this year so as to achieve borough includes leading the instead by industry under the recommended 5 per cent

instruction than army and navy equipment R and D, where traditionally more design and project work had been done in-house. Nevertheless, for the RAE it will mean some changes. For example, there is the pos-

Kerr has also created three ing potential of the remote pilot- Kerr says. less vehicle (RPV). A third is a systems analysis division, reflecting his experiences of the value of simulating war Tasks throst upon Farn-scenarios at the Defence Opera-borough as a result of the tional Analysis Establishment in the 1960s.

Not yet resolved is the future of the National Gas Turbine Establishment near Farnborough. Strathcona recommended a special study of the future of this laboratory and whether, for example, its programme could satisfactorily be divided between RAE and Rolls. Royce. About one-third of the NGTE's work is on civil air-craft engines. On future military aircraft concepts such as the P110 fighter and the super-sonic jumplet, RAE and NGTE already work in close partner-ship. A merger between RAE and the NGTE is an obvious pos-

"My job is totally different from that of Farmborough's director 10-15 years ago." Mr Kerr acknowledges. But it still mersed in the science and tech-nology of aerospace, while on the weapons side he is increasing, not reducing, the estab-lishment's efforts.

One major change on the civil side which has given him some extra manpower is the closure last spring of the thermal testing of a Concorde airframe, a programme which involved about 66 people. Cold testing continues for several years yet, however, to complete the data needed for Concorde to continue in service to the end of the century.

. The other recent developthe Falklands war, drained the laboratories of much of their most advanced technology as the special ward on the nose of the demands of the engagement helicopter (see accompanying

RAE carried out about 90 trials on its ranges in direct response new divisions. One, in the flight to such requests as how ships systems department, will focus could decoy the air-launched the rapidly developing techno- Exocet missile. It was an logies of flight computers. Another is an unmanned aircraft division, emphasising the grow- the most innovative ideas," Mr

### Wind-tunnels

engagement ranged from new combinations of aircraft and weapons—Harriers armed with Sidewinder missiles, for instance-to the use of its windtunnels to explore ways of putting up tents in high winds.

The establishment's capability for night vision was in urgent demand in a war which was being fought round the clock; traditionally night has meant a respite in fighting. New navi-gation and radio fix systems were rushed from the laboratories to equip the Vulcans and Nimrods for inflight refuelling in total darkness. The Harriers and helicopters were hastily fitted with the latest technology

"The rate at which we introduced modern systems at the start of the Falklands crisis is incredible." Mr Kerr claims.

Some of the new systems will be making their public debut at the Air Show. Farnborough itself will be demonstrating its REDOWL (Remote Eyes in the Dark Operating Without Light) system of night vision for heli-copter pilots as part of a major exhibit of the helicopter as a weapons system. REDOWL allows the pilot to fly very low and to undertake search and rescue operations at light levels lower than clear starlight. Ferranti developed the technology in collaboration with the RAE's flight systems depart-

REDOWL's display is mounted on the helmet of the pilot and served by a low-light-level TV or infra-red sensor set for-

### Aerospace enters a new era

THE FINANCIAL TIMES, in conjunction with the Royal Aeronautical Society, is holding the latest in its series of Aerospace Conferences on August 31, and September 1 and 2, at Grosvenor House, Park Lane, London, entitled "Aerospace Enters A New Era."

Designed with the Farnborough Air Show (September 5-12) in mind, the theme of the conference is that, despite the current recession, there is considerable hope for the future. A distinguished international panel of over 30 leaders of the aerospace, civil aviation and related industries will discuss this theme during the three-day event.

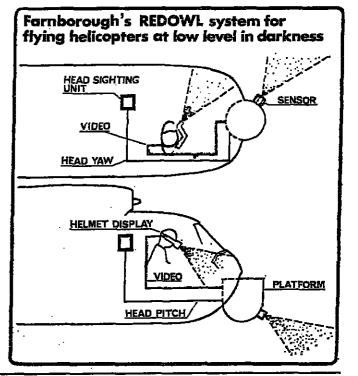
sketches). The novelty of the RAE's system is in the way this sensor follows the head movement of the pilot, providing him with an uninterrupted wideangle vision of the world outside. He can even effectively "through the floor," for his field of vision extends 100 degrees to the left and right of centre, and from +20 to -100 degrees in the vertical plane.

The helmet-mounted display

measures pilot head angles in pitch and yaw and feeds the figures to servos in the sensor platform so that it follows the pilot's line-of-sight. At its heart is a very fast-acting servo, found essential in order to avoid the pilot becoming severely disorientated by any lag in the response of his elec-tronic eye in following the direction in which he was actually looking. If they were to retain the pilot's full co-operation the scientists found that the sensor had to swivel at speeds of at least 1.000 degrees



Mr Tom Kerr-back at RAE as head man on his third tou of duty





The first of 17 twin-jet 757s for British Airways (BA) takes final shape at Boeing's Renton, Washington, factory. The new aircraft will join the 757 test fleet later this year for Britain's Civil Aviation Authority certification. UK Government approval is expected in January, when the first BA 757 is scheduled for delivery

### New electronic bird watcher scans North Sea air traffic.

Who would expect air traffic to be much of a problem anywhere near this lonely headland in the Shetland Islands, far to the north of Scotland?

The reason is simple. Oil. The Shetlands, once better known for sweaters and sheep dogs, are just a hop by helicopter from North Sea oil fields. It's not surprising, then, to find a sophisticated radar system in use keeping busy whirlybird air traffic safely under control.

Inside the cocoon-like

shelter shown in the photo (left) is the antenna of such a system, designed and built by Cossor Electronics Limited for the U. K. Civil Aviation Authority. At the airport nearby, controllers use Cossor displays to monitor approaching and departing air traffic.

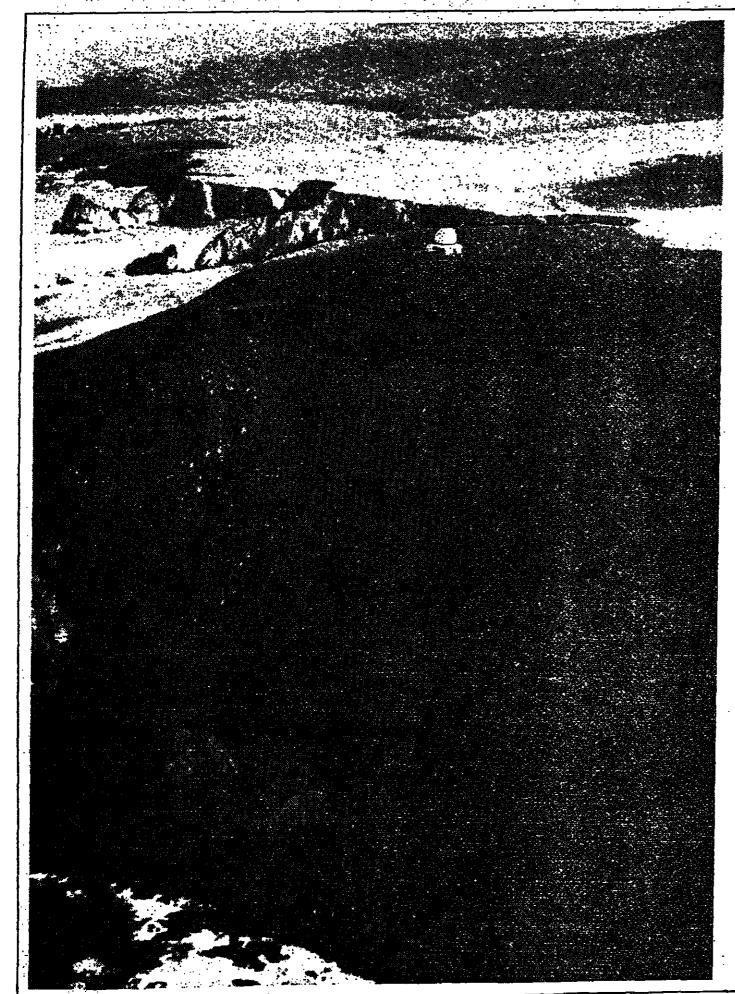
This is just one of hundreds of similar radar systems that Cossor, a Raytheon company, has

supplied for use at airports around the world and just one part of Raytheon's widespread involvement in air traffic control.

Raytheon has recently completed a fully integrated air traffic control system for the Federal Republic of Germany. In the United States, we have long been a supplier of radars, automated displays, and computer systems for the enroute air traffic control network.

Raytheon...a \$5.6 billion company in electronics, aviation, appliances, energy, construction, and publishing. For copies of our latest financial

reports, please contact any of the offices or companies listed below, or write: Raytheon Europe. 52. Route des Acacias. 1227 Geneva. Switzerland, or worldwide headquarters, Raytheon Company, 141 Spring Street, Lexington, Massachusetts, U.S.A. 02173.



FOR INFORMATION ON COSSOR: Cossor Electronics Limited, The Pinnacles, Elizabeth Way, Harlow, Essex CM19 5BB, England, Tel. 0279/26862. OTHER RAYTHEON COMPANIES IN EUROPE: Electronics: Data Logic Limited; London, England • Raytheon-Copenhagen, Denmark • Raytheon Halbleiter G.m.b.H., Munich, West Germany • Raytheon International Data Systems. Amsterdam, Netherlands: Frankfurt, West Germany • Raytheon Marine Limited, London, England • TAG Halbleiter G.m.b.H. Boeblingen. West Germany • TAG Semiconductors Limited, Zurich, Switzerland • Wire and Cable: Electrical Installations Limited, London, England • Le Fil Dynamo, S.A., Meyzieu, France • Greengate Cables Limited, Manchester, England • Klasing G.m.b.H. & Co., Bramsche, West Germany • Sterling Cable Company Limited, Manchester, England • Microscope Resistant • Mic

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The first of the state of the s

The engine makers and suppliers are having their troubles but technological research for the long term continues apace.

# Tougher times ahead for engine makers

AS WITH the aircraft builders, are either already on offer or Royce and Pratt & Whitney. will subscribe, and what kind their drawing boards, but so far types of fuel. At a time when the world's major aero-engine manufacturers over the moone has taken the plunge the airlines use over 20bn galunder development, or for management structure the moone has taken the plunge the airlines use over 20bn galunder development, or for are now sitting down together of management structure the moone has taken the plunge the airlines use over 20bn galunder development, or for are now sitting down together of management structure will and announced a firm development, or for the source of them. The soarreduced work-load on civil years before comme engines such as the RB-211 has returns can be achieved. led to reductions in the labour

The lack of orders for the Boeing 747, and the decision by Lockheed to end TriStar production by 1984, resulting in the cancellation by some airlines of outstanding options on the latter aircraft, have helped to depress demand for the Dash 524 version of the RB-211.

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In the meantime, however. production work on the new Dash 535 version of the RB-211 engine is growing, to meet existing contractual commitments, but the slow inflow of new orders for the Boeing 757. which the RB-211-535 powers, is also helping to keep overall commercial aero-engine output at Rolls-Royce at a comparatively low level.

### Slackening Similarly, at both of Rolls-

Royce's rivals, General Electric and Pratt & Whitney in the U.S., the airline recession and the consequent slackening of demand for aircraft and engines has cut work-loads substantially. frame manufacturers, the longterm future for the aero-engine to place stringent demands on builders is brighter. Pratt & the engine manufacturers for Whitney for example, has fore-improved fuel consumption, cast that the total world aircraft lower noise and reduced emismarket through to 1992 will amount to \$438bn (in 1982/83 dollars), of which \$173bn will be for about 4,050 commercial

airliners: \$196bn will be for 21,200 military aircraft of all kinds; and \$69bn for 37,500 general aviation aircraft of all types (including business and executive jets, leisure flying and agricultural and other general duty aircraft).
Of the overall market, Pratt & Whitney estimates that the value of turbine engines sold will amount to \$138bn by 1992 (in terms of 1982/83 dollars), of which the commercial airliner engine market will account for

\$71bn: the military engine for about 47,000 engines, worth about \$52bn: and the general aviation market for about 74,000

over 12,000 engines, worth

engines, worth some \$15bn. Most of this business, how-

year or so have experienced the ing cost of engine research and engine companies, and those full weight of the recession. The development means that today from West Germany and Italy, marked slow-down in the rate it can cost as much as \$1.5bn to to try to formulate a joint proof ordering by the airlines has \$2bn to develop and manufacturamme to develop an engine forced production cuts on the ture an entirely new civil air- for this new class of airliner. engine builders, and in some craft engine, and much of that cases, such as Rolls-Royce, the money is on risk for many reduced work-load on civil years before commercial

Such outlays are likely to preclude the development of more than one new type of civil jet engine in each class of aeroplane in the foreseeable about \$20bn. future, and where even that engine can be derived from an earlier model it is likely to be

What this means is that today's generation of commercial jet engines, and those already under development for the future, will continue in production for many years to come. They include the RB-211 in all its various versions for air-liners such as the Boeing 747, TriStar and 757 airliners; the Pratt & Whitney JT-9D and General Electric's CF6-50 and as the 747. Boeing 767, and Airbus A-300 and A-310; the Pratt & Whitney PW-2037 for the Boeing 757; and the Snecma-General Electric CFM-56 engine series for the new Boeing 737 Series 300 and other airliners.

There is scope for considerable adaptation and improvement in all of these engines, Nevertheless, as with the air- and these can be expected to occur as the airlines continue sion pollution, and on the airframe makers for "stretched" or other derivatives of existing types of airliner.

It is significant that in the commercial jet engine field, only one entirely new major engine is seriously being considered for development—the engine for the projected 150seat airliner-although in other areas, such as the turbo-propeller field and in the area of small jet engines for business aircraft and other uses, several new developments are being studied.

Because of the very high costs of new engines, the power-plant for the 150-seater seems likely to be an inter- facturers. national collaborative venture on a much wider scale than ever before undertaken.

One of the most far-reaching developments is that two of the ever, will be for engines that commercial engine fields. Rolls-

The stakes are high. The market for the aircraft has commercial been estimated at upwards of 1,000 over the next decade or so, worth perhaps \$50bn, of which the engine market is likely to account for some 3,000 units (including spares), worth

> the potential Although rewards are high, however, the development cost is beyond any individual manufacturer, and the collaborative venture is essential if everyone is to win some share of the market. The benefits of collaboration include not only spreading the burden of costs, but also eliminating the competition and widening the ultimate market for the successful power-plant.

At present, the discussions General Electric's CF6-50 and on the 150-seater engine centre CF6-80 Series for such aircraft round the RJ-500 hitherto being developed jointly by Rolls-Royce and the three Japanese engine companies, but Pratt and Whitney has also been working on ideas for an engine of its own, and these are also being brought into the

discussions.
At this stage, it is not known what kind of engine will emerge, but it will clearly incorporate the best technology that each engine manufacturer can contribute.

### Ideally

Nor is it yet clear precisely when the engine will emerge, although it is generally accepted that the aircraft involved will be needed some time in late 1987 or in 1988. This means that the engine should ideally become available about two years in advance, say, in late 1986, which in turn means that a start on its development needs to begin around the end of this

If, however, the airline recession remains for very much longer, the likely demand for both airframe and engine could be pushed back towards 1989 or even 1990, taking much of the pressure off the manu-It is hoped that the current

discussions will reach some conclusion before the end of this year. The problems are not only who will produce which bitterest competitors in other parts of the engine, but also how much cash each partner

putting in its own cash, but the various European and Japanese companies will probably be seeking cash support fro mtheir governments.

The latter will need to be of the eventual market for such a venture, before committing themselves to any form of financial support.

### Inevitable

Should the discussions on a joint venture fail, it is inevitable that each partner will go his own way. Rolls-Royce and the Japanese will return to work on the RJ-500, and Pratt & Whitney, supported by Motoren-und Turbinen Union and Fiat, will return to its own studies. The resulting competition will be of benefit only in the sense that the airlines will have a choice of power-plants.

There will be a bitter fight in the market-place between the rival engine groups, and whether the latter will make any money out of such a battle is doubtful.

Apart from jet engines, there has been a significant revival in recent years in the possible development of new types of turbo-propeller power-plants — which are much quieter than jets, and use much less fuel. The turbo-prop engine is already widely used in military transports, and in the smaller, lighter types of transport aircraft, especially the twin-engined "commuter" or "regional" airliners seating between 20 and 50 passengers and even in smaller aircraft used in business and general

aviation. Whereas at one time in the 1950s and 1960s, large turboprop airliners were in use (such as Bristol Britannias), they were effectively forced out of the mainstream of world airliner activity by the advent of the jet. which then had the advantage of very cheap fuel

The sharp rise in the price of aviation fuel over recent years, and the inevitability of further rises throughout the rest of this century, has encouraged a renewed interest in the large turbo-prop airliner, and hence in a possible return to large turbo-prop engines. Several of the major airframe

manufacturers, especially in the U.S., have project studies for large turbo-prop airliners on

ment programme. Pratt & Whitney will be because so far the engine makers have not themselves announced plans for new large turbo-prop engines.

It is probable that such engines as the Rolls-Royce Type and Proteus, mainly used in satisfied as to the cost and military aircraft and hovercraft. work-sharing arrangements, and could be adapted for use once again in commercial airliners. but here also the problem is finding enough development cash, and the need to be assured of reasonable markets.

The major propellor manufacturers, too, have been studying new developments in this field, and propellors that look more like ships' screws than the current conventional fourbladed propellers are being studied closely. These, it has been suggested, would enable airliners to fly at speeds close to those of jet airliners, but with much lower operating

Whether such aircraft emerge remains to be seen, but undeniably it is an area of research that could yet have farreaching results for the world's

of improving fuel-management
so as to squeeze every possible

Yet another major area of research is into alternative

tion essential in every way (through improved operating procedures as well as in greatly mproved fuel-efficient engines), but also the search for alternative fuels is greatly encouraged.

The possibilities of using such alternatives as liquid hydrogen have been studied by a number of manufacturers, but the heavy costs involved in producing and supplying to airports round the world the quantities that are likely to be required, together with the safety factor and the heavy costs of adapting aircraft and engines to their use, tends to encourage the belief that it will be a long time before such fuels emerge as practical alternatives, if at all

It seems that, for the immediate future, the greatest emphasis will be on the development of derivatives of existing power-plants, or of new ones, using existing fuels but with ever greater fuel-efficiencies, whilst the airlines will continue to explore every possible means so as to squeeze every possible mile from each gallon consumed.



ADVANCED ENGINE FOR BOEING 757

Test running is in progress with an RB-211 535-E4 development engine with a high-efficiency wide-chord fan. This engine is being developed for service in Boeing 757 airliners from 1984 onwards. Its advance fan incorporates technology unique to Rolls-Royce. Recent testing has shown that fuel consumption is reduced by over  $2\frac{1}{2}$  per cent compared with the earlier design of the fan in the initial 535C engine

# Equipment will absorb increasing share of all-in costs

**EQUIPMENT** and components provide the vital third element aerospace manufacture, ranking in importance alongside the design and production of airframes and engines.

Each sector is very closely related and changes and developments in airframe and engine technology are matched by improvements and advances in the equipment and components at the heart of contemporary aircraft.

The size of the equipment and component industries around the world can be gauged from the size of the commercial and military aircraft business.

Forecasts from Boeing, the world's leading manufacturer of commercial airliners, estimate that sales of commercial aircraft will be worth \$126bn over the next decade. One third of this spending is expected to be accounted for by equipment and components, an estimated \$40bn over the next 10 years.

### Military

In the military aircraft sector the role of equipment and com-ponents involves even greater expenditure, both proportionately and in absolute terms. Industry and government sources estimate that total sales of fighter, bomber, reconnaissance and other aircraft including helicopters will be worth \$196bn over the next decade.

Breakdowns of the cost of contemporary military aircraft suggest that at least 50 per cent of the total spending on military aircraft is likely to be accounted for by equipment and components, a total of about \$98bn by

This high proportion is accunted for by the greater complexity and multiplicity of roles military aircraft are designed

A third outlet for aerospace quipment and components is the guided weapon sector. Sales forecasts are more difficult to establish for guided weapons but industry sources in the U.S. suggest that over the year to 1992 the U.S. and the

rest of the world together are expected to spend between

\$75bn and \$100bn on all types of tactical guided weapons.

An even greater proportion of this expenditure is likely to be accounted for by equipment and components than the onethird to a half of total spending in the case of aircraft. In guided

propellers of the future may look weapons, which are almost little the world aerospace industry. more than flying guidance systems, well over 50 per cent of the cost is accounted for by equipment and components and

70 per cent.
This would put a value of \$70bn on the supply of equipment and components for guided weapons up to 1992.

the figure could be as high as

The high proportion of equipment and component costs in guided weapons is accounted for the relative simplicity of the tube-like bodies and the rocket motors or small turbines

which power the missiles. By taking the three main sectors of aerospace, excluding strategic weapons and space hardware, the total free world market for aerospace equipment and components for commercial and military aircraft and guided weapons can therefore be estimated at approximately \$208bn between now and 1992. This gives it an importance unrivalled by any other single sector of

A close-up of "proptan" technology-how the aircraft

The scale of this forecast spending is certain to bring with it intense competition between manufacturers and also the possibility of greater collaboration between companies where the high costs of development outreach the resources of individual companies.

The high costs of developing new aircraft and missiles has already led to a reduction in the number of major projects on hand at any one time. This in turn has encouraged companies in the equipment and components sector to concentrate their efforts on getting a foothold on

the large production runs asso-ciated with these projects. A typical and very successful example of this type of effort bringing rewards for a British maker of aerospace equipment involves the new Boeing 757 airliner programme. Dunlop Aviation Division announced this summer that it had won a major contract to supply structural carbon brakes and main

An initial order for 100 air-crafts sets of wheels and carbon brakes for the eight-wheeled aircraft was placed by Boeing with an option on a further 200 sets of equipment. The total value of the original contract and future replacement business over the next 20 years was esti-mated by Dunlop to be £60m at current prices.

This contract could be worth £200m for the 300 aircraft on option by world airliners. Boeing has forecast that sales of the 757 airliners could exceed 1,000 aircraft.

Structural carbon brakes are in use on Concorde, where they have a proven track record. On the Boeing 757 they are ex-pected to achieve at least 3,000 landings and will save approximately 678 lb in weight.

This type of collaborative cross-frontier exercise has also been demonstrated by U.S. companies supplying equipment for European aircraft projects.

### Revision

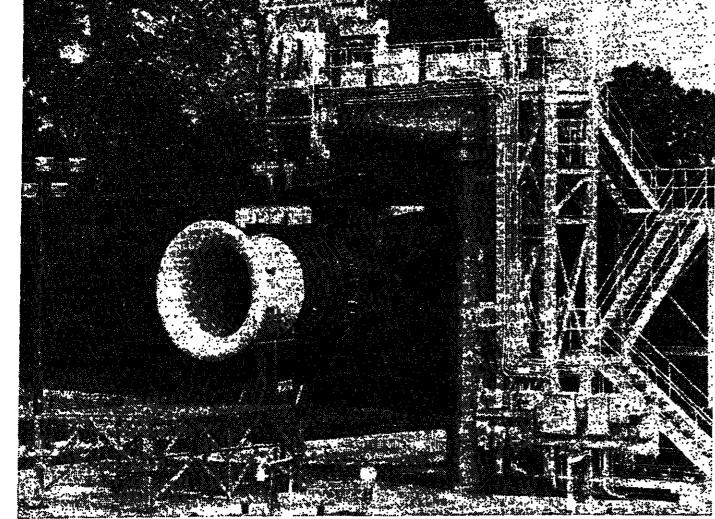
The EDO Corporation of New York has a contract to supply 6,000 ejector release units for the West German and Italian national requirement for the Anglo-German-Italian Tornado multi-role combat aircraft being produced by West Germany and Italy. A recent revision of the contract price gave EDO a total

contract value of \$151m.

This type of informal "two-way-street" of sales in aerospace equipment is generally more prevalent in the civil airliner sector than in the military, where there is still a tendency for countries and companies to try and keep within national boundaries some of the more advanced technical developments. especially where these involve giving a military advantage to one country or another.

The battle to develop the next generation of advanced air-to-air missiles is a case in point and involves a desire by the U.S., Britain and Germany to collaborate to share develop-ment and production costs. At same time, however, the national companies involved are likely to be less willing to share every detail of their own developments of equipment, produced after expensive in-house innovation and design work.

Lynton McLain



TESTS ON ONE OF THE WORLD'S MOST POWERFUL ENGINES

The General Electric Company of the U.S. commenced successful testing ahead of schedule of its CF6-80C engine (above) at GE (USA's) outdoor facility at Peebles, Ohio. During the preliminary performance tests, the engine demonstrated a corrected thrust level of 61,000 pounds, and the specific fuel consumption was within 1 per cent of the original specification. The engine is thus one of the most powerful in the world

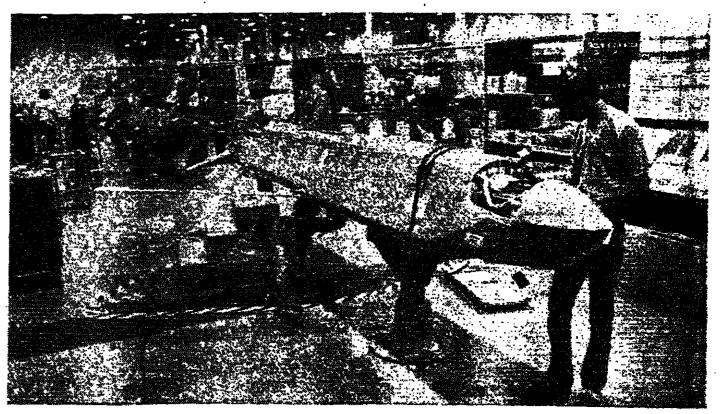


### LONG-RANGE DETECTION

A NEW variant of the Westland Sea King (left) has completed trials at Westland Helicopters, Yeovil, and two are embarked on HMS Illus trious for deployment to the South Atlantic.

Equipped with an advanced marine surveillance radar, the Thorn-EMI "Searchwater." the new Sea King provides long range detection of aircraft at low and high altitudes as well as surface tareets as small as submarine periscopes.

This new capability was eccomplished in only 11 weeks, by close collaboration and intensive working by a joint Ministry of Defence, Royal Navy, Westland and Thorn-EMI team. Flight trials have already shown that performance of the system is outstanding and exceeds



The final assembly of a Boeing Cruise missile at the company's factory in Seattle, U.S.A. The Cruise missile, in common with other advanced guided weapons, has a simple body shell and is powered by a relatively simple motor, in this case a small gas turbine. The complexity of the missile lies at its heart, where microelectronic computers and associated electronic guidance systems account for well over 50 per cent of the total cost of the weapon. In general, components and equipment account for a greater proportion of the cost of guided weapons than is the case with even the most advanced military aircraft.

expectations.

What engine launched the 767, A310, 747SUD and A300-600?
Our JT9D-7R4.



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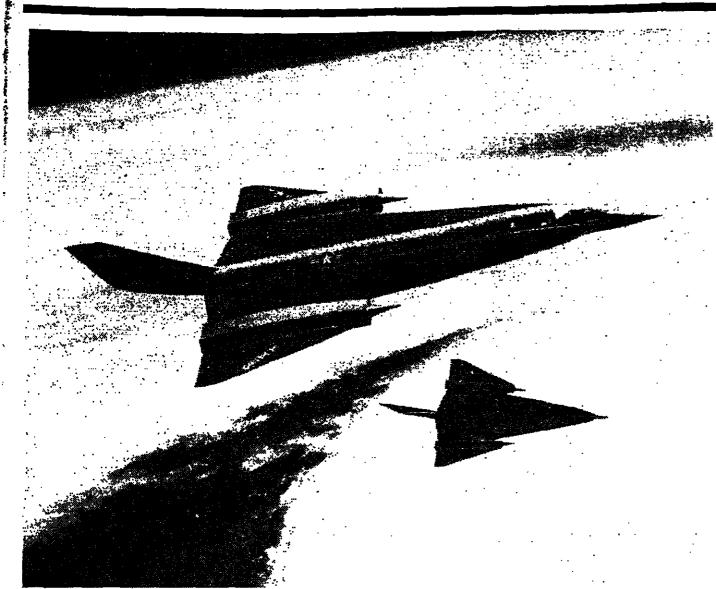
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AEROSPACE VI



THE possible shape of things to come is illustrated in these conceptions of an Advanced Tactical Fighter under study by the Lockheed-California Company. The fighter's role would be the defence of the continental U.S. against enemy supersonic hombers but it would also have the capability to per-form deep strike and air-to-air missions in any theatre of

Resembling the Lockheed SR-71 Blackbird in both design

and performance, the proposed ATF would use new advanced aluminium alloys that cost less than titanium. These alloys would make feasible the airframe's manufacture under conventional fabricating methods with titanium use limited to areas of the aircraft, such as engine nacelles, subject to extremely high temperatures. Some advanced carbon graphite composites would be employed in the inner parts

As costs continue to rise, more and more care is being spent on perfecting missiles of all kinds to improve the capabilities of aircraft as "weapons platforms"

# Guided missiles form spearhead of advanced technology

THE guided weapons sector of the world aerospace industry is set for a period of further rapid growth and unprecedented technical change. The next decade is widely expected by the industry to be marked by multibillion dollar sales with rising exports and a level of technical advance unthought of five years

These developments are set to place the guided weapons industry in a position of growing importance in the aerospace supply industries.

At the same time, military will try to assimilate the lessons of the Falklands' war — the first to provide a full-scale test of siles in combat — and look to a future dominated by a new generation of hyper-velocity "thinking" missiles of unprecedented accuracy, with laser and particle beam weapons

The size of the guided weapons industry may be gauged by the scale of the forecast sales for next year and into the 1990s

Sources in the US differenand sales of all other types of guided weapons to all countries over the period. by all manufacturers, U.S. and

Next year, the U.S. is expected to spend a total of U.S.\$9.1bn on strategic missiles. By comparison, a total of \$7.9bn II.S. and by all other countries on all other types of tactical guided weapons, in 1983.

### Strategic

Over the decade to 1992, the U.S. is expected to spend programes between companies and between \$75bn and \$125bn on

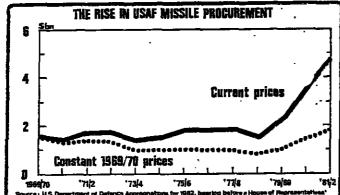
A similar total, between \$75bn and \$100bn is expected to be spent by the U.S. and the rest of the world together on all other types of tactical guided 1992, according to U.S. sources.

spending forecast by Boeing, the may be limited by the desire U.S. commercial aircraft company this year for civil aircraft technical up to 1992—an estimated \$126bn especially those achieved at by all airliners with all manufacturers. This underlines the scale and importance of the pany's products. guided weapons industry.

Unlike the commercial aircraft sector, however, forecasts and detailed analysis of guided weapon sales are not readily available. This reflects the secrecy and political sensitivity of sales, especially to the Middle East and Africa, the regions with the largest imports of guided weapons. Nevertheless selected figures

are available. In particular, "World Military Expenditures and Arms Transfers' published in March this year by the U.S. Arms Control and Disarmament Agency for 1970 to 1979, shows the scale of the arms trade in surface-to-air said in London, recently. guided missiles, the only missile category specified in the docu-

The agency says that a total of 25,670 surface-to-air guided missiles were exported by the developed nations of the world



type of missile reaching a fer of any more technology," he cumulative total of 16,960 mis- said, siles for the period. The U.S. Th was the second supplier with 7.140 surface-to-air missiles sold for export, followed by France, with the export of 1.340 surfaceto-air missiles, and Britain with the export of 230 surface-to-air missiles.

The Middle East was the leading recipient of these missiles and acquired over 14,000 surface-to-air weapons between tiate broadly between sales of 1975 and 1979. Africa was the U.S. strategic ballistic missiles second largest importer and acquired over 7,500 missiles

Other guided weapons, with unquantified sales to all regions. include air-to-air missiles, airto-ground missiles, air-launched, ship-launched and ground-launched anti-ship missiles, antiradar missiles, anti-missile missiles and the range of strategic and tactical nuclear weapons including cruise missiles.

Many of these guided weapons have been developed and produced under joint collaborative

The aim of this collaboration is to reduce unit costs by sharing research and development expenses and to promote standardisation of equipment among including the allied forces. Atlantic Treaty

Organisation. However, the extent of future weapon expenditure are com. collaboration on the new parable with the scale of generation of advanced missiles of manufacturers to safeguard developments, high cost and which could give a competitive edge to a com-

> Admiral Sir Raymond Lygo, the chairman and chief executive of the British Acrospace Dynamics Group, one of the world's leading missile producers, emphasises that a lack of collaboration between manufacturers of guided weapons is one notential obstacle to further standardisation of equipment, many, and the U.S. He believes that a company can only maintain its full indepen-

dence if it keeps its ideas on advanced technology to itself. The need to defend our industrial base has implications for the extent to which British Aerospace can proceed with collaboration projects aimed at increasing standardisation." he

He insisted that Britain had already given away a good deal of Nato. of advanced technology. He accepted that collaboration was between 1975 and 1979. The of exchange in technology. At U.S., for its part, is to develop Soviet Union headed the list of the moment, however, "I am the next generation of advanced exporters with total sales of this most concerned about the transmedium-range air-to-air mis-

airframe and engine manufacrapidly escalating development

Nevertheless. the guided weapons industry has developed successfully a number of roissiles through joint collaborative programmes. In Europe, a consortium known as Anti-Surface Euromissile, made up of British Aerospace Dynamics. Aerospatiale and Messerschmitt-Bolkow-Blohm worked for several years on an anti-surface

eapon to meet Nato needs. In December 1979, after a memorandum of understanding signed by the British, French and German Governments, the Euromissile Dynamics Group was formed by BAe, Aero-spatiale and MBB to design and

build new guided weapons. The first project of the Euromissile Dynamics Group is the development of a third-generaanti-tank guided missile for service in the 1990s. This weapon. so far unnamed, is to be a successor to the BAe Swingfire, the existing Euromissile Milan and the TOW anti-tank missiles. Later, Euromissile Dynamics is to assume responsibility for

other joint projects agreed by the three governments.

British Aerospace Dynamics is also the lead contractor in Britain for the new European advanced short-range air-to-air missile (ASRAAM). This is being developed as a 50:50 joint venture with Bodenseewerk Geratetechnik (BGT), the lead contractor in West Germany.

The ASRAAM project is part of a planned rationalisation of future air to air missile design. development, production and procurement agreed between the Governments of the UK. the Federal Republic of Ger-

### Memorandum

The rationalisation is based on a Memorandum of Understanding signed by the three governments. Under the MOU, it is proposed that the development of the next generation of air-to-air missiles should be shared between these members

The plan is that Europe, through BAe and BGT, should principle against it provided on the new short-range air-tothat there was a two-way-street air missiles, the ASRAAM. The U.S., for its part, is to develop

the AMRAAM, with Hughes as the lead company.

Under the MOU, the European partners and the U.S. will each have the right to produce both missiles, where necessary under licence. Britain is expected to buy the AMRAAM from the U.S. and the U.S. is expected to buy the ASRAAM from Britain and Germany.

France may take part in the project at a later date.

In the meantime, the design concept of the ASRAAM has still to be finalised. British Aerospace Dynamics Group is determined to go for a hypersonic hittile according to Admiral Sir Raymond Lygo. This approach would embrace the This approach is in contrast advances in guidance and proto the growing practice in the pulsion technology and would enable British Aerospace to turing industries. Here, col-laboration has become a stan-dard practice in the fire of ground-to-air missile.

Rapier is also a "hittile." It costs, beyond the range of any is lightweight, has only a small one company.

warhead and is designed to hit its target. Other missiles are designed around a large warhead intended to explode in the proximity of the target.

British Aerospace does not see proximity technology as the way forward in guided weapon design. The company's ideas for ASRAAM suggest a weapon without a warhead with hyper-sonic velocity, several times the speed of sound, designed to hit physically the target aircraft and destroy it with kinetic energy, the energy of the mis-

sile's forward motion.
This is already within the scope of existing technology. The great advance comes with BAe's confident forecast that the ASRAAM will be produced, starting in 1986 at half the price of existing short-range missiles such as the Sidewinder. At the same time advances in microelectronics and composite materials technology will enable BAe to produce the new a half of the weight of existing

Sidewinder-type missiles. Production of the new missiles is expected to start in 1986, with an in-service date of 1987-88. The economies of large scale production possible under the Memorandum of Understanding between the UK, Germany and the U.S. on the new generation of advanced air-to-air weapons

could well be accentuated if the new "hittile" weapons are modified for anti-tank, surfaceto-air, and air-to-surface roles. The U.S. is also interested in hyper-velocity weapons and the S. Air Force has requested \$8.2m in research and development funds in the 1982 financial year to start to develop a new

hyper-velocity missile. In military terms, the impact is likely to be greatest in air warfare. British Aerospace is already suggesting that the advent of "hypersonic hittiles" will call into question the viability of manned aircraft. especially as the cheapness and low weight of these missiles will enable very large numbers of

them to be deployed. Later in the century, lasers and particle beam weapons may start to displace conventional a problem, but he was not in take responsibility for the work guided weapons, but those mislikely to be of the small, cheap, thinking hittile variety.

Lynton McLain

Military aviation, including aircraft and missiles, is bnoyant worldwide, with many countries, especially in the Third World, building up their air power. This demand will ensure a continued high volume of business for the Western world's aerospace industries for the foreseeable future

# Continued strong demand for combat aircraft

MILITARY AIRCRAFT

Aircraft market estimates 1983-92

MILITARY AIRCRAFT activity. in contrast to the commercial business. buoyant world-wide, defence budgetary problems in some countries, and pressures for disarmament in others. Moreover, the overall long-term outlook for the military market remains good, especially with countries in the Third World increasingly interested in buildtheir armaments inventories.

The fact is that in the currently unstable situation that prevails in many parts of the world, the climate for arms sales has never been better, and among those sales military aircraft, especially light tactical combat aircraft of low cost, and their associated armaments, rank highly.

The problems confronting the military aircraft salesmen, however, remain severe. There are significant restrictions imposed on many military aircraft manufacturers. including those in the U.S. and the UK, as to where they can or cannot sell their wares, and covernments are becoming increasingly conscious of the public's sensitivity towards arms

At the same time, many of countries in the Third World that might be interested in buying, are themselves con-strained by lack of cash. While it is acceptable for them politically to borrow money for commercial aircraft procure-ment, it is much more difficult to do so for military hardware of all kinds.

Nevertheless, arms sales remain substantial, and the arms sales long-term outlook is good. One the most detailed forecasts of the likely future strength of the world military aircraft market has been made by Pratt & Whitney Aircraft Group, part of the United Technologies group, and the world's biggest huilder of aero-engines, civil

and military. The company estimates that between 1983 and 1992, there will be a market for about 21,200 military aircraft of all kinds, worth about \$196bn fin 1982 dollars) of which about \$52bn will be spent on engines and the rest on airframes.

### Biggest share

The biggest share of this market is likely to be accounted for by tactical combat aircraft of various kinds, amounting to about 10,900 aircraft costing some \$124.4bn. The rest will include 100 strategic aircraft (such as long-range hombers) costing about \$17.7bn, 950 trans-\$26,2bn. and 9,250 other types (such as reconnaissance aircraft, trainers, liaison and communications aircraft), costing

close to \$28bn. British Aerospace, also significant military aircraft manufacturer. forecasts substantial continuing demand, amounting to an average of about \$30hn a year world-wide through to the end of this

century. These sums may appear to be high, but in fact the cost of military aircraft is rising, as the complexity of airframes. engines and weapons systems increases. The cost of a Tornado multi-role combat aircraft, for example, can be as Defence Variant.

One result of this rising cost

\$B Units \$B Units Units 100 17.7 70.3 10.900 124.4 10.7 950 26.2 Tactical Transport Total market ...... 7,700 103.9 13,500 Turbine engine market estimates 1983-92 Aircraft Non-U.S. SB Units Nil 500 SB Units NII Strategic 17.4 13,000 . 2,200 . 11,000 3.6 2,300 2.8 11,400 Transport Total market + Figures in 1982 dollars. efforts are being made to keep bility of eventual supersonic vertical and short take-off and

aircraft in service for longer periods, while spending the available cash on improving the weapons they carry to a much greater extent than hitherto-The aircraft is increasingly the cost of such a venture will being regarded as a "weapons platform," with the development emphasis and budgets being concentrated upon making it carry missiles and other

sophistication and destructive capability. Budgetary countries are also influencing the rate at which new military aircraft are being developed. This is especially case in the Western Alliance, where defence budgets are already strained and have to he spread over a wide variety of programmes, with military aircraft having to take their turn in the queue for

weapons loads of greater

decelopment cash. In the UK. West Germany and Italy, these budgetary constraints have already resulted in a stretching out of the rate of Tornado multi-role combat aircraft deliveries, although it is still intended to build the full

909 aircraft planned. Nevertheless, throughout the and Western Europe, despite the heavy costs involved, several major new military aircraft programmes are aiready under way, and new

ventures are being planned. The highly successful Harrier the AV-8B Harrier II for both the U.S. Marine Corps and the RAF (which designates it the GR Mark 51, with 336 aircraft to be built for the Marines and 60 for the RAF. This is a joint renture between McDonnell Douglas and British Aerospace. with McDonnell Douglas prime contractor for the U.S. programme, and British Aerospace prime contractor for the RAF aircraft.

The first AV-RB for the Marine Corps is due into service in 1983, with the GR Mark 5 entering RAF service in 1986.

The two companies foresee a possible substantial export especially in the light of the superb performance by the and its maritime Harrier variant, the Sea Harrier, in the summer. Perhaps as many as 500 Harriers beyond those now envisaged could be sold, with the majority of the customers heing navies rather than land-based forces.

Beyond the existing Harrier problem is that increasingly developments lies the possi-

Non-U.S.

although some research work has been undertaken on this. both in the U.S. and the UK,

be high, and it is still probably several years away.

Nevertheless, it is an option in future Harrier development that cannot be discounted, and it is probable that pressures for

it will grow through the 1980s constraints in fighter, attack and reconnaissance aircraft launched for the Swedish Air Force, with plans for an even-tual 140 aircraft planned for the end of this century, although the initial contract calls for 30 aircraft.

The JAS is being developed by a new consortium called the JAS Industry Group, comprising Saab-Scania on the airframe Volvo Flygmotor on the engine, and L. M. Ericsson, SRA Communications and the equipment group on various parts of the equipment and components programme.

Through the extensive use of new technology, the JAS will be smaller and lighter than the current Viggen series of current replace, while offering better performance, including supersonic speeds at all altitudes.

Looking ahead, several major new programmes are either contemplated or under way. In the UK, British Acrospace, in conjunction with Rolls-Royce and several major equipment companies, has been developing as a private venture a new comhat aircraft to replace the Jaguar jet strike aircraft, called the P-110. During the past summer, extensive discussions have been held with West Germany and Italy in anothe. attempt to win international collaboration on this programme (earlier attempts to evolve a European Combat Aircraft or ECA had little success)

The West Germans, who have called the TKF-90, may now be ready to participate in a joint programme, as a result of market for Harrier Us looming, severe defence budget conwill probably straints which preclude the development of an

all-German venture. Whether the French, who Falkland Islands earlier this also have a new venture of their own, the Avions Marcel Dassault-Breguet ACX experimental fighter (which it is claimed could fly within four years and go into production in the late 1980s) will also join in

is uncertain. But at least efforts are being

madet o get the P-110, or an airechnology and developed on an international collaborative hasis, of the ground. The arcraft is mapor ant for the UK be the last major new military aircraft to he developed in this

country until the late 1990s. As Tornadol production work peaks out and starts to run down in the and 1980s, finally coming to an end around the end of this decade, the UK uidustry-aufrant, engine and all the many equipment and component manufacturers-will need new work to take its place, craft of similar size and complexity, the military aircraft side of the aUK aerospace

industry will run down. Another major hope for the UK industry is that the British Aerospace Hack jet trainer and light combat aircraft, which 15 already in service with the RAF and has won several export orders, will finally be selected as the trainer for the U.S. Navy in its so-called VTX-TS pre-

In Western Fairope, Italy is developing a new light combat aircraft, the AMN, to replace the Fiat G-91 and Lockheed F-104 fighters, and Embraer of Brazil has joined in this programme. A first flight is due in

Aircraft such as the British Aerospace Hawk and the Italian Brazilian AMX are examples of the light tactical combat aircraft which could have large sales over the remaining years of this century in the countries of the Third World.

Those countries cannot afford the higger, more complex and expensive types of advanced combat aircraft, but can afford the smaller, cheaper types, and if is for this reason that estimates of future sales tend to that the biggest demand will come in the tactical combat aircraft field.

### Tendency

The tendency in use existing types of combat aircraft from which to derive new developments is illustrated by the work now being done in the U.S. to find a new long-range, @al-role interdiction and combat Schler. building the File fighter in quantity, has also developed from it the F-16XL featuring what is called a "granked-arrow" wing, with improved reace and weapons payload. This centure, financed by General Dynamics itself, flew this summer, and 😅 to be tested by the U.S. Air Force against the McDonnell Douglas F-15E Strike Eagle combat aircraft. The aim is to find an aircraft that can carry about twice the payload of existing fighters about 40 per cent further. The U.S. Air Force is funding the flight test programme, which will take about 10 months at Edwards Air Force Base. California

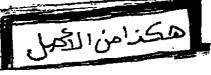
Also in the U.S., Northren continues development of the F-5G Tigershark as a inverse. tactical Schier suitable for export by the U.S. to overseas countries, especially in the Third World.

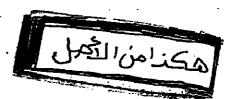
Work is also now under way range supersonic Rockwell BI-B supersonic bomber, designed to carry up to 30 air-launched

Michael Donne

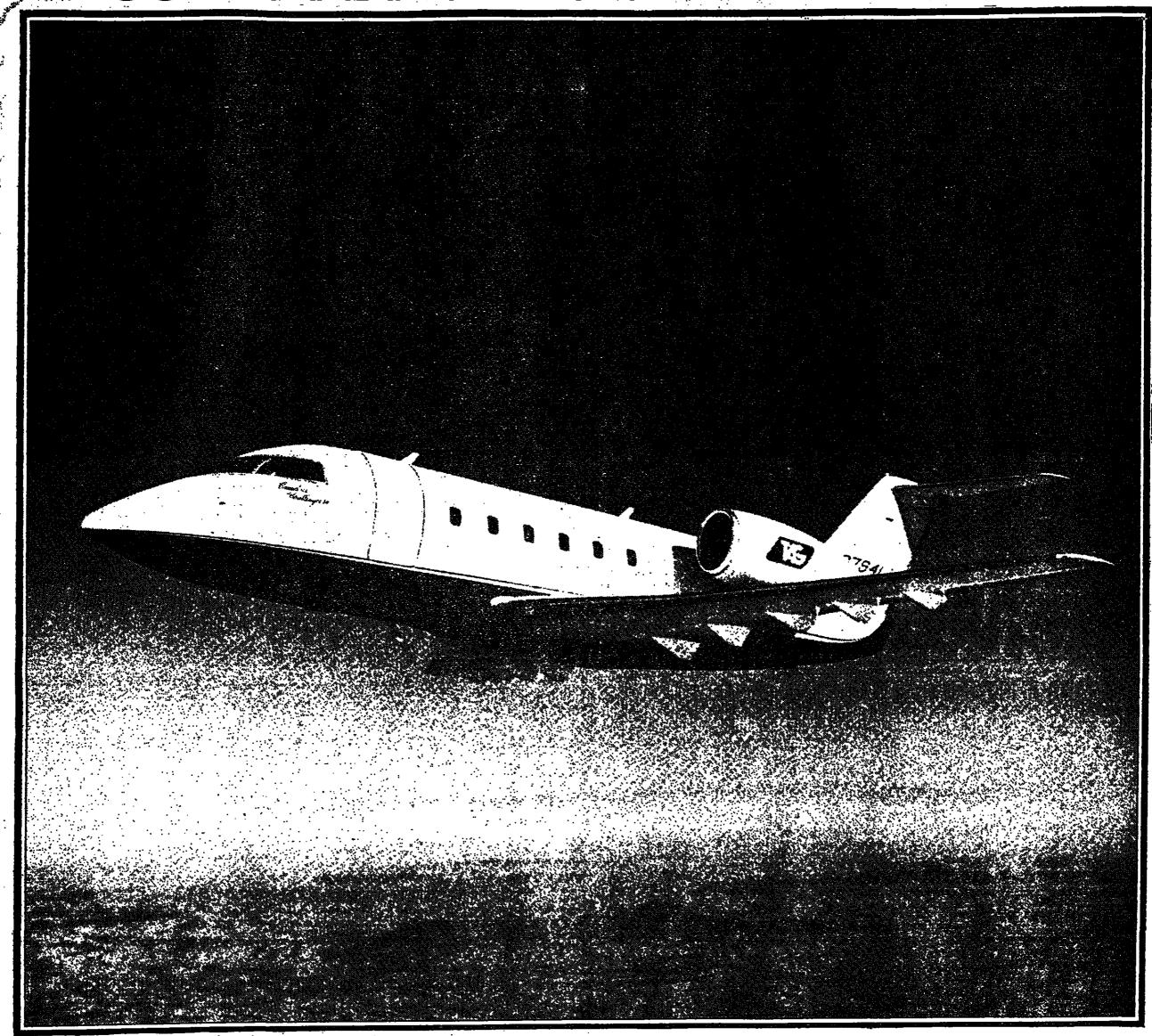


The British Aerospace Dynamics Group's Rapier missile system which was deployed to such advantage in the Falklands conflict. It is seen here on display at the recent British Army Equipment Exhibition at Aldershot





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**Grazi** 

### AEROSPACE VIII

The "new frontier" of near-Earth space is becoming an increasingly significant arena, politically, economically and technologically, promising big business for the world's aerospace industries.

# Lively competition in space

Over the remaining years this century, the major space programmes of the world are likely to be dominated by the proliferation of near-Earth orbiting unmanned satellites. for an ever-widering range of uses, accompanied by a growing volume of manned near-Earth space activities.

While communications will head this list of uses, both for telephone and data transmissions, and also increasingly for tele-conferencing and broadcasting, many uses are being and will continue to be found

Weather forecasting is already well established but wide area of Earth resources monitoring is now attracting increasing attention. Activities in this field include seeking new mineral deposits. detecting fish shoals, and monitoring the onset of pests and agricultural diseases in underdeveloped countries, to name

but a few.
There are also many direct cientific tasks that both unmanned orbiting spacecraft can perform, particularly to discover more about the near-Earth environment and how to use it more beneficially for mankind as a whole in the future. Although in the past, most of

the demand for satellites has emanated from the U.S. Western Europe, the Soviet Union and Japan, there is now an increasing desire by other countries, especially in the World, to possess satellites of their own, primarily although not exclusively for

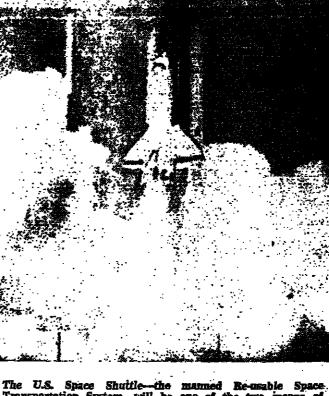
As a result, it has been esti-mated that between now and the end of this century, there will be a world-wide demand for between 150 and 200 communications satellites alone, while if to this total is added the satellites for other purposes, the total demand could amount to upwards of 500 spacecraft. creating a multi-billion dollar business (which some have put at over \$60bn) for space hardvare alone.

These requirements will also demand generate increased launching capabilities. In the Western World, are aiready primarily met by the U.S., with both its Delta and Atlas-Centaur rocket launchers, but now increasingly by the Space Shuttle, or Manned Re-usable Space Transportation System. which is to be the linch-pin round which the new U.S. Civil Military Space Policy.

With an eventual anticipated the Space Shuttle is the most eclipsing in significance even operation. the Manned Lamar Landing This has already happened in Programme of the 1960s in its Western Europe with the eventual value in the exploita- Ariane, which having been tion of near-Earth space.

developed initially by the European control of the exploitation of the ex

President Reagan's Space pean Space Agency is now the Policy is aimed not only at operational responsibility of making near-Earth Space an Arianespace, a commercial comopen arena for commercial and pany set up in 1980 with scientific space activities by all industrial and banking as well nations, but also to ensure that as government shareholders it is not used for hostile purposes by any nation.



Transportation System-will be one of the two means launching Western World satellites and other spacecraft into orbit through to the end of this century and beyond.

The difference between the Space Shuttle and the Ariane is re-usable system, whereas the latter is an expendable, unsystem. eventually is for the Shuttle to bring down the price of putting payloads into space, but at present, the expense remains very

high for both systems. Nevertheless, the competition is already fierce, and Arianespace has been highly successful in the past year in winning orders from major customers vorldwide for satellite launch-

ings.
Arianespace aims to capture at least 30 per cent of the Western world satellite launching market in the years ahead. The cost squeeze imposed on NASA by the U.S. Government, and its own need for cash to further other space development programmes, including interplanetary distant planets and various scientific missions, have already resulted in a decision to raise Shuttle prices to outside customers, while the original plan recently, announced by President Reagan, will be built.

essential in the Shuttle is ever to achieve 487 missions over the to make money on a com- 12 years to the early 1990s has dent Reagan, will be built. to achieve 487 missings over the

believes missions by 1994. (in 1980 dollars) by 1985, when Shuttle's operations, currently envisages a fifth launch, later it is likely to be fully function-ing as a commercial enterprise. run by the NASA, ought to be this year, carrying communica-turned over to the private com-tions satellites into space; five tions satellites into space: five mercial sector for marketing launches in 1983: 10 in 1984: ambitious space programme yet and operation, so as to make it 16 in 1985; 18 in 1986, and undertaken by the U.S., a more realistic commercial building up thereafter to about 24 launches a year, rising to 40 in the 1990s.

Many of these projects will be satellite launching missions, but a large number will also carry payloads for the Depart-ment of Defence, or various scientific missions. especially using the European-developed Spacelab which fits into the cargo bay of the big Shuttle

The increased cost of a total Shuttle mission from Oct ber 1. 1985, will now be \$38m. (in

1975 prices, the base-rate that NASA uses), which when adjusted for inflation means a 1982 cost of \$71m. This compares with the \$32m (in 1942 dollars) that a mission will cost up to 1985. This cost can be divided among all Shuttle users, when a multi-role mission is

NASA estimates hat the cost putting a communications satellite into orbit from 1983 will thus rise to anything between \$26m and \$41m, depending on satellite size. It says that these rates will be competitive for the charges for launching via the conventional Delta and Atlas-Centaur Delta and Atlas-Centaur rockets, and it also claims they will remain competitive with

the tharges set by Arianespace, The latter organisation now holds firm orders for more than 24 rockets, of which up to 13 will be launched by 1986, from French space base at irou in Franch Guiana. Kourou in them Carrying communications

Production of Ariane rockets is being increased, from the present 4.8 a year to between seven and eight a year from

Should demand increase (and everyone believes it will) Ariane output will go up to 10 rockets a year, matching the launching capacity that will be available from 1985 at Kourou, where a second launch facility is now being built.

It has already been decided to enlarge the capabilities of Ariane, with the development of Ariane 2/3 capable of put-ting larger satellites into orbit from 1983. The development of Ariane 4 will follow. This will have more than twice the capability of the original Ariane 1, and will enable it to put spacecraft or other payloads into orbit up to a total of 4,300

The development plan vides for the first Ariane 4 (for which the development will cost about \$250m, in 1981 prices) to be launched late in 1985 and become operational early in 1986.

Looking beyond these develop-ments, both NASA and ESA are examining the possibilities of eventually putting perma-nent manned stations into near-Earth orbit, and further detailed studies for these are already planned. NASA expects to put its requests to the U.S. aerospace industry soon, while ESA will also he commissioning a study from European industry.

NASA and ESA have already exchanged views on matters at the highest and it is possible, but by no means yet settled, that there will be collaboration between the U.S. and Western Europe in this field.

The most likely eventual course would be for the U.S. to launch the space station, with parts of it being contributed by Europe — as was done, for example, in the case of the Shuttle, which uses the Eurnpean-developed Spacelab. While there will continue to be fierce competition between the U.S. and Western Europe for satellite manufacture and satellite launches, co-operation will con-tinue in a wide variety of other space activities.

increased the areas to be tested

in the new airship. Skyship

500 is a prototype auship and

it is also a flying testbed for

the new materials, construction

Airship Industries, as a

result, has the task of proving

the new technology as well as the general concept of the ar-

ship as a commercial form of

transport or as a craft with military applications.

to prove to potential users that its chosen route to airship

design—the non-rigid envelope

design of Skyship 500-is the

Nevertheless, the new design

features of Skyship 500 appear

to work as their designers pre-

dicted, aithough few perform-

ance figures have been pub-

far these design ideas and

What is less certain is how

lished by Airsnip Industries.

best way forword.

In addition, the company has

techniques and design ideas.

Michael Donne

The other will be Europe's Ariane unmanned rocket. own space launching capabili-ties, with the development of

Throughout the rest of this

century. limited launch facilities available elsewhere (such as in Japan), and those provided by the Soviet Union and China for their own talthough they programmes may offer facilities to other countries), it seems likely that the Space Shuttle and the Ariane will be competing as the Western world's major launching

### Looking ahead

After its fourth successful test flight earlier this summer, the U.S. Space Shuttle is now regarded by the National Aeronautics and Space Administration as operational, although there are some problems still be overcome. One of these is the need to improve the "turn-round" time between missions—something that James E. Beggs, the administrator of the NASA, regards as essential if the Shuttle is ever mercial basis.

Mr Beggs also development cost of over \$14bh strongly that eventually, the

from 11 countries, with whom would-be users of the rocket Now, however, Western place contracts for their Europe has rapidly improved its launches.

Orbiter vehicle.

Airships are back in the news again-Lynton McLain explains why.

# Push to get financially airborne

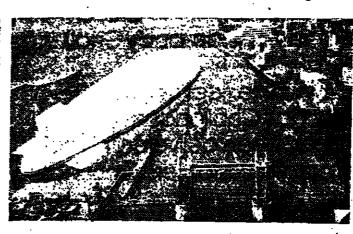
EARLY THIS spring an airship flew serenely over the City of London, not on a passenger flight, but simply to fly the flag of its corporate owner. Airship Industries, in the hope of raising support, and much needed money, from City investors. The event was unremarkable

in itself-airships make little noise and disturb few people. It was remarkable, however, as the first flight of a British-made airship over London for over half a century.
The flight raised hopes for the

airship's designers, builders and financial sponsors of visible progress towards passenger and freight-carrying airships later this decade and into the 1990s. It also underlined the crucial importance of risk finance for airship development.

The reality of airship develop-ment, however, is still a long way from these ideals. The main stumbling block slowing the development and commercial and military acceptance of airships is the weakness of the commercial and tactical case put forward by airship supporters and the continuing viability of existing modes of transport. It is a disappointing fact for air-ship supporters that the commercial benefits of airships remain almost as uncertain this remain almost as uncertain and in their materials of conautumn as they did a year ago
when Skyship 500 — Airship
when Skyship 500 — Airship
is that
both craft were and other airships of its generation will not be used again on one which flew over the city - assembled in the saltook to the air for the first time. hanger at Cardington. This first anniversary has The design of Skyship 500 was The use of lightweight some poignancy for those hop-based from the outset on the use materials and new technology ing for a revival of the airship of new technology, new

Skyship 500 took to the air on air craft.



Skyship 500, designed and built by Airship Industries on its first flight over the City of London in April. The .50 metres long craft has a top speed of 72 miles an hour and can carry up to 18 passengers.

parhaps the most famous of all. gondola carrying the crew and the ill-fated R101, took to the air passengers with a total of 10 on a maiden flight to India from seats, is made of Kevlar, a on a maiden flight to India from Cardington, Bedfordshire. The flight ended in tragedy when made by Du Pont of the U.S. R101 crashed at Beauvais, north of Paris with the loss of 47

lives. It would be invidious to liken Skyship\_500 with the doomed R101. The two craft could hardly be more different in

dustry and military authorities. not used before on lighter-than-

September 28. Almost exactly The non-right envelope is 51 years earlier, on October 4 made of a new polyester 1930, enother British airship, material from France. The Ine materials,

lightweight high-strength fibre The tailfins and bulkheads are made of a light and strong honeycomb sandwich material.

Only the engines. Porsche motor car power units, are conventional, driving ducted-fans. Non-flammable helium is the design concept, in lifting gas lifting gas and it is almost tion, will not be used again on commercial airships.

The use of lightweight for the Skyship 500 craft has

as a tool for commerce, in- materials and new techniques enabled the designers to make the greatest possible use of the lifting capabilities of the The non-mind envelope is lighter-than-air helium gas, made of a new polyester. The decision to go for new

materials can be extrapolated successfully into larger and potentially more commercially. viable or useful airship designs At the moment, Skyship 500 is severely limited in its commercial and military applications and is very much a prototype. It has a top speed of 63 knots, 72 miles an hour:

a limited range; and a payload of 10 seats, as a result of its small size. 164 ft long and 48 ft in diameter, and limited volume Airship Industries has plans for a Skyship 600 craft and a

Skyship 5000, the latter designed to carry 200 passenpers and a payload of 25 tonnes for a total construction cost of

Mr Reith Wickenden, the CONTINUED ON

technical support. CONTENTS -Orders received by 5 Cataber 1982 will be involced at \$40 plus pap REVIEW Jane's Defence Review is produced

SMITHS INDUSTRIES MICRO CIRCUIT FUGHT CONTROL ( HEAD UP SYSTEMS ELECTRONIC DISPLAYS PRODUCTS HEAD DOWN WEAPON ELECTRONIC DISPLAYS SYSTEMS SMITHSTNDUSTRIES-Smiths Industries has been providing SMITHS INDUSTRIES instruments and systems for Aviation AEROSPACE & DEFENCE since 1910. Today the company supplies SYSTEMS COMPANY over 450 airlines and air forces flying 150 different types of aircraft operating in 150 countries.

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civil and military, currently in

rapid change and development,

the airborne equipment and

being developed world-wide.

Acronyms and abbreviations

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Addenda

1981-82

index

**CIVIL AND MILITARY** 

Systems and equipment

improvement.

FIRST EDITION Edited by Michael Wilson

In the past decade aircraft design has been revolutionised by huge strides in electronics technology, particularly in micro-electronics. The safety, reliability, convenience and economic effectiveness of commercial aircraft, and the military effectiveness of bombers and fighters, have all benefited from the radical new technology now available.

Less than five years ago the world's first aircraft to rely entirely on electronics for control went into service. This month sees the delivery to an airline of the world's first 'digital' airliner, setting new standards in economy: the story is one of

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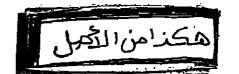
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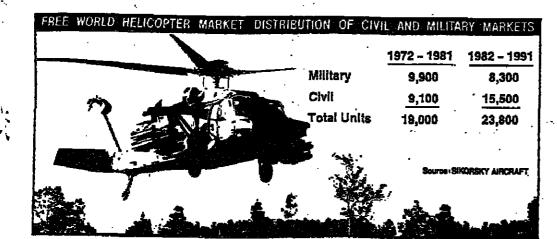
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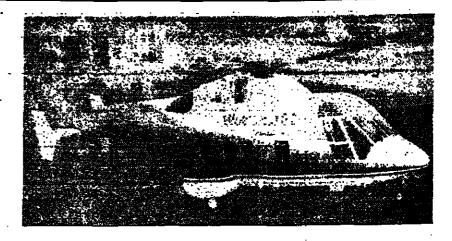
Jellico isso

addenda.

INDEXES







Sikorsky Aircraft of the U.S. is now developing an advanced helicopter concept, (left), with contra-rotating blades, to give improved performance. Right, the Westland 30-a new helicopter for commuter airlines throughout the World from West land Helicopters of Great Britain. In production for British Airways Helicopters, Airspur Inc. of Los Angeles, SFO Relicopters (San Francisco), and other operators, the W-30 seats up to 17 passengers in wide-hody comfort

# for helicopters

THE WORLD'S helicopter civil side, in the mid-1980s and significant military helicopter manufacturing industry has beyond. been less affected by the recession than its fixed-wing counterparts, although the rate of growth which in the 1970s was running at about 5 to 6 per cent

But with a continuing demand for military helicopters, and a widening range of uses for Falklands Islands situation, so rapidly without the rotarycommercial helicopters now emerging, most manufacturers annual growth rate perhaps even higher than that prevail-

service between London and

Paris for pasengers at £30

44 per cent of this held by institutional shareholders.

by members of the public. Borrowings stood at £550,000

The management of the com-

Industries, is convinced that the Skyship 5000 could offer an air Initially, the Walioon Regional

Production of this larger and Belgians have an option to buy

potentially commercial airship a further 29 per cent of the could start in 1984. equity.

several factors. The first is that

production programmes can be anticipated through the next

decade. On the commercial side, increasing use is already being made of helicopters. Their use use of helicopters as logistical in the off-shore oil and gas support industry is now almost legendary - those industries One example is the recent could not have been exploited winged aircraft-and the list of other uses is growing rapidly. General construction, timber

harvesting, utility applications (such as police work, coastguard, customs, harbour patrols,

are now among the every-day problems to be overcome—for France (Westland and Aerouses for helicopters, while a example, noise is still an area major new market is also to which more attention needs laborated on the development developing in corporate and to be paid, especially before executive transport as new air-direct city-centre commercial craft are tailored specifically to operations can become widely the needs of such markets. acceptable—the overall "social New technology, and in paracceptability" of the helicopter

ticular the use of new compois improving. One estimate of the future site materials, giving greater weight savings and thus helping to reduce operating costs, tomilitary and commercial tur-bine-engine helicopter market suggests that between 1983 and improved fuel efficiency, are all increasing the attractiveness of 1992, the total demand could be as high as 17,000 aircraft, worth helicopters for commercial \$17bn.

But as with other types of Moreover, in the past decade aircraft and engines, both com-n particular, the helicopter in-mercial and military, the ustry has matured, in the development costs of new venin particular, the helicopter industry has matured, in the sense that this type of aviation tures are soaring and, in many cases, are becoming prohibitive is no longer regarded as unusual or even dangerous, and for individual companies. One has become increasingly result of this is that inter-accepted by the public at large, national collaboration is rapidly by the military, and by the air emerging as a major force in transport and general aviation the industry.

This not unusual in Western While there may still be some Europe, where the UK and

spatiale) some time ago colof the Gazelle light helicopter, the Puma tactical transport aircraft and the Lynx multi-role aircraft, and where Westland and Agusta of Italy are also now collaborating on the development of the new EH-101 as a Sea King anti-submarine war-fare helicopter replacement. with civil versions also planned.

But the possibility of trans-atlantic helicopter collaboration is also now looming. At the Hanover Air Show earlier this summer. Mr Robert F. Daniell, president of Sikorsky Aircraft, one of the world's big-gest helicopter manufacturers, said that his company was " ready and willing to share its

technology and production acti-vities with world-wide allies." Sikorsky is seeking industrial partners to produce its modern line of helicopters (including the S-76 commercial turbine aircraft and its H-60 Black Hawk series of advanced technology utility transports), as well as to help develop new

models. We are not just seeking short-term co-operative efforts. said Mr Daniell. "We are also looking for long-term collateral development agreements on present and future programmes."

Mr Daniell made it clear that in Sikorsky's view, the costs of research and development were now such that every R & D dollar had to be used to its full potential.

" It should not be spent duplicating helicopter technology for each country just for the sake of it. No one can afford that type of R & D redundancy."

industry, especially in the mili- of the aircraft is expected to and other loads that these tary sphere, where the Anglo- seat about 30 passengers. The rotary-winged platforms will Italian EH101 is the latest programme is likely to be sub- carry. collaborative venture to established.

tween the two countries could come. be aigned early next year. Both

in bad weather.

The EH-101 will also have a much greater load-carrying capacity, and will carry the new UK-developed Stingray torpedo

in bad weather.

demand for the W-30 will eventually run to several hundred aircraft through the decade ahead.

In the military field, the role as well as advanced sonic equip-

### WORLD HELICOPTER MARKET

Estimates of values, 1982-91, in 1981 dollars

Rest of the U.S. Europe world\_ 6.6bn 2,8bn 3.1bn Military 7.6bn 5.0bn 6.5bn (Source: Sikorsky Aircraft, U.S.)

ment. It will be used on the new class of Type 23 frigate now under development for the Royal Navy.
A new company, EH Indus-

tries, has been set up by Westland of the UK and Agusta of fewer entirely new types will Italy to run the Ell-101 pro- emerge as development costs gramme. The first flight of the aircraft is expected in 1984/85. and first deliveries to military This message has not been customers is expected in 1987/ lost on the European helicopter 1988. The commercial version stantial, costing several hun-dred million pounds, and it will

Mr John Nort, UK Secretary generate considerable demand for Defence, reaffirmed earlier for advanced avionics and this summer that this new anti- equipment, and provide consubmarine warfare belicopter timuity of employment for the would go ahead, and that it was UK and Italian helicopter inhoped that a joint contract bes dustries for many years to

In addition to the commercommercial and military ver- cial version of the EH-101, to increase the numbers sold phasis on the civil W-30 and keep costs down.

Westland is putting much em-Mr Nott said that the new role military aircraft. The W-30 sircraft would be heavier than has already entered service the existing Sea King it is de-with British Airways Helicopsigned to replace, but it will be ters in the demanding North more agile, enabling it to Sea oil and gas support role, operate from small ships safely and Westland is hoping that

> of the helicopter is also widening, and increasing use is being made of this type of aircraft as reconnais-ance, anti-tank warfare and tactical assault transports overland, as well as in anti-submarine warfare at sea.

With eight major manufac-turers (Westland of the UK; Agusta of Italy; Aerospatiale of France; Messerschmitt-Bolkow-Blohm of West Germany; and Bell, Boeing-Vertol, Hughes and Sikorsky of the U.S.) and several smaller manufacturers in the U.S. and elsewhere all compering for what is expected to be a market for upwards of 600 aircraft a year outside the U.S. (in that country the demand will be substantially higher), the market is expected

to be tough. It also seems likely that emerge as development costs soar, and that the in-service lives of existing types, or their derivatives, will be extended, with much greater emphasis being placed on the weapons

Michael Donne

# Expansion ahead

a year has slackened.

believe that the long-term future is bright, and that an

This confidence is based on

in the military sphere, armed forces world-wide are now plac-ing much more emphasis on the work-horses," troop carriers and combat weapons systems. where the recapture of the islands would have been made much more difficult, if not virtually impossible, without the use of helicopters as anti-submarine warfare aircraft, troop ferries, ing before the recession might and as "gun-ships." overland, fire-watching, traffic surveilbe achieved, especially on the As a result of all these factors, lance and ambulance duties),

Push to get financially airborne continued from previous page chairman of European Ferries in the investment of a further the equity in the company. He which holds just over 11 per \$2.5m in airship designs by the cent of the equity in Airship Walloon Regional Government company based for the time being on the Isle of Man and the move away from non- of the first R-30 airship.

miles, to a crew of 13 for patrol seeking a total of £12m to fund duties when the range could be the rest of the development, as high as 4:300 miles.

The move away from non- of the first R-30 airship.

Government subscribed and was allotted 325,000 shares at 125p Aluminium alloy would each for £406,250 in cash. The skin would also be used. Airship Industries is approximately 18m, with his under half

committed to the concept of

proposed rigid airship for use which has effectively split the as a maritime patrol craft.

Also, rigid airships would be embryonic airship movement

R-30 would have a lifting designed and built on "absointo two distinct camps is the volume of 1m cu ft of helium. lutely conventional aviation pany hold a quarter of the formation of a new company to based on a frame 337 ft long, equity and 20 per cent is held design and build rigid airships 75 ft in diameter, with four fins based on a frame 337 ft long. and four engines in two nacelles. The top speed would of conventional frame design.

rigid airships of the Skyship 500 design to rigid designs with ribbed metal frames was based used for the rib framework of on the belief that non-rigid the rigid R-30 airship proposed designs would be limited in by Wren Skyships and an alloy size to craft with about 30m tonnes maximum payload.

### £12m sought

grade technology," Wren Sky-ships said recently. There would be no need for the designers to ever, that it is still a long way try new technology, certainly In March, when the company led by Major Malcom Wren, a be 134 knots. Payload would not until the concept of the that proving the commercial announced an extraordinary former chairman of Airship vary from 15 tonnes, when the rigid airship had been proved, case for the airship is still the development which could result. Industries with 3.6 per cent of craft would have a range of 250. Wren Skyships is currently most crucial task,

Substantial amounts of tooling are likely to be needed for series production of the craft and the company estimates that as much as £21m would be needed to produce 50 R-30 craft, which would sell at £4.5m each.

The company claims to have identified a total market for 200 airships of the R-30 type with applications in maritime patrol, passenger carrying and the carriage of low density, high bulk cargoes.

The company accepts, howfrom raising the money and

# ABOARD THE SUPER 80,



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COSTS OF BUSINESS AND LIGHT AVIATION Typical operating costs and performance for light executive aircraft

Hourly Annual Range in nautical fixed cost cost (£) (£). Twin-engined: Piper Cheyenne III 190.45 1.020.000 37,890 2,240 Piper Navajo Chieftain 220 1,415 250,000 27,700 138.30 PA 34 Seneca III 135,000 9,300 80.31 193 990 PA44 Turbo Seminole 53.85 820 105,000 Single-engined: Piper Warrior 35,000 7.195 25.67 640 Piper Arrow IV 11,495 36.20 143 935 60,000 Piper Saratoga SP ..... 75,000 50.47 Source: CSE Aviation, Oxford.

GEN	ERAL A	VIAT	ION		
Aircraft	market e	stimat	es 1983	3-92	_
, Aircraft	U.s	s.	Non	.U.S. U.	_
type	mari	ket	mai	ket mar	ket
	Units	\$B	Units	SB Units	\$B
Feeder - commuter fixe	ed				
wing	1,190	3.6	3.600	10.9 4.700	14.5
Rusinger utility fixed wit	ng 10.500	26.4	5.600	10,5 15.500	36.9
Helicopters	7 800	7.8	9.500	9.5 17.390	17.3
Total market	19,400	37.8	18.100	30.9 37.500	68.7
Turbine engi	ne marke	t esti	na(es	1983-92	
Aircraft	U.S	 i.	Non-	U.S. U.	S.
type	mark	et	mar	ket mari	ket
-VP-	Units	SB	Units	\$B Units	\$B
Feeder - commuter fixe	d				
wing	3.100	0.8	9.400	2.3 12.500	3.1
Business-utility fixed win	g 22 600	5.7	10.700	2.4 33,300	8.1
Helicopters	12 700	1.4	15.500	1.7 28.200	3.1
Total market	38 400	79	35.600	6.4 74.000	14.3
•	"(1982 da	llars)			
Source: Pratt and Whitn	ey Aircra	ift Gr	oup (L	i.S.A.)	

Lynton McLain examines the impact of the decline in economic activity. the rise in fuel prices and the high cost of operating aircraft in the general aviation category

# International demand for general aviation aircraft has plummeted

pleasure has plummeted in the U.S. and the industry faces its most testing time for years. The U.S. is the world's main light aircraft manufacturing base and is the main market for general aviation aircraft, ranging from turbojets and turboprops to single-engined piston aircraft.

Exports from the U.S. have also fallen, reflecting the decline in economic activity in world markets for business and light aircraft.

The previous high rates of growth in the fleet of general aviation aircraft in the U.S. have slowed substantially. Total flying time by these aircraft has dropped sharply as companies operating the aircraft retrench in the face of limited or zero growth in their own sectors.

These trends reflect the impact of the decline economic activity, the rise in fuel prices and the high costs of operating aircraft in the general aviation category. The sector embraces aircraft

for use by companies and individuals on business, pleasure, for use as agricultural sorav piatforms, as commuter carriers air taxis and as platforms for specialised industrial work such as surveying, photography and pipeline patrols. The decline in economic

activity has forced many users, but especially those using aircraft for business purposes, to re-assess the cost-effectiveness of the aircraft at a time when to cut costs. The need for these re-

Business aviation is in the doldrums in terms of economic activity

ments does not, however, sug-

Forecasts by the U.S. Federal Aviation Administration (FAA) market constituted a solid predict that growth in the underpinning. general aviation sector as a whole between 1981 and 1993 year. At this growth rate the equipment has dwindled to a FAA estimates that the fleet of snail's pace; the used aircraft 10,000 aircraft a year over the with sales prices down as much

turboprop aircraft is expecteto double to 9.500 by 1993 and the number of turbojet aircraft also is expected almost to double to 6,300 over the same and in what was until recently period. These are the categories a of aircraft favoured by business segment as well. operators who are likely to business when the recession

Meanwhile, "business aviation is in the doldrums in terms of economic activity," according to Mr John H. Winant, presi-

L-1011-500

747 F/C

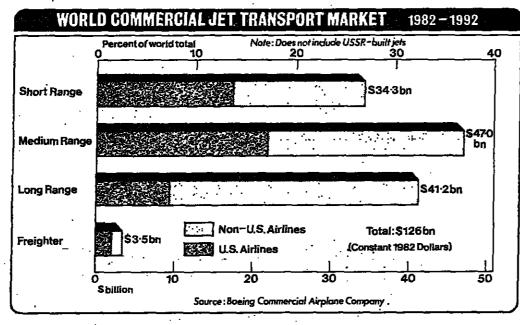
DC-10C

FREIGHTER

FORECAST SIZE OF U.S. FLEET OF GENERAL AVIATION AIRCRAFT,

1982-1993

Forecast as of		Pia	Fixed wing				flotorcraft	
January 1	Total	Single-engine		Turboprop	Turbolet	Piston	Turbine .	dirigibles gliders
1982	220.4	173.9	26.6	4.8	3.3	3.0	3.5	5.3
1983	226.4	178.0	27.6	5.2	3.4	3.1	3.6	5.5
1984	233.2	182.7	28.6	5.6	3.6	3.2	3.7	5.8
1985	241.6	188.9	29.6	6.0	3.8	3.3	3.9	6.1
1986	250.3	195.2	30.7	6.8	4.2	3.7	4.2	6.8
1987	260.5	203.0	31.8	6.4	4.0	3.5	4.0	6.5
1988	271.6	211,2	33.1	7.2	4.4	3.9	4.5	7.3
1989	284.6	221.1	34.6	7.6	4.7	4.1	4.7	7.8
1990	300.2	233.0	36.4	8.0	5.I	4.4	5.0	8.4
1991	317.3	245.8	38.4	8.5	5.5	4.7	.5,4	9.0
1992	334.7	259.0	40.4	9.0	5.9	5.0	5.7	9.7
1993	352.7	272.7	42.4	9.5	6.3	5.3	6.1	10.4
Source: F	FAA.							



Aircraft Association of the U.S., in the U.S. last year, with in-role of general aviation aircraft in a speech to business aircraft creases of 15 per cent and 19 operators earlier this summer. An extremely large backlog gest that the days of company- of orders for new aircraft, parowned business aircraft are ticularly for turbojets, boistered business aviation through 1981 and a strong used aircraft

All this had now changed however, Mr Winant said. "Booking of orders of new market place is in disarray, as 20 per cent to 30 per cent In particular the number of from the original asking figures set many months ago. There are also deep lay-

offs in the manufacturing community for fixed wing aircraft helicopter and burgeoning

"A slack economy, cutbacks rovide much of the new in capital spending, persistence of high interest rates and softness in the used aircraft market have all taken a toll," Mr Winant said.

Turbojets and turboprops dent of the National Business of light aircraft to show growth

per cent respectively over the all flying, followed by business previous year to give an output of 389-turbojets and 918 turboprops in 1981. Output of and multi-engined piston-powered light aircraft likely to change in favour of fell substantially, however, to business aviation if the recent fell substantially, however, to the total output general aviation aircraft in 1981 to 9,457 aircraft, a fall of

The FAA in its latest forecast predicts that production of light aircraft in the U.S. this year will drop by over 13 per cent to 8,200. This compares with the that greater use has been made output of 7,402 in 1970, the of these more advanced aircraft lowest annual production for a

in output the total fleet of airand general light aviation much as general aviation air-duties in the U.S. is expected Craft on average in 1980, despite continue rising from the 210,300 aircraft active in 1980. Estimates from the FAA suggest that 214,300 aircraft may have been active last year, 220,400 aircraft this year and that an estimated 352,700 air-

craft will be active by 1993.

WORLD JET AIRLINER TYPES AVAILABLE

and accounts for 46 per cent of use with 23 per cent and aerial spraying with 7 per cent of all

This mix of applications is growth in the sales of advanced turbojet and turboprop aircraft. jaxis to and from airports and mainly for business use, continues, while single engined aircraft personal and sports flying suffer in the face of the recession.

Already there is evidence

types. The National Business Despite the predicted drop Aircraft Association, using FAA data, shows that turboprop airfor business, pleasure craft were used three times as slowdown in business

The larger the aircraft the more accentuated was this difference. Twin-engined turbo-190.5 hours average for light Personal flying is the primary aircraft in 1980.

activity.

much less well developed than in the U.S. A total of 6,738 general aviation aircraft are registered in Britain, with almost two thirds used for private and business purposes.

These aircraft have access to over 200 airfields in Britain and an estimated 2,000 or more airfields throughout the Conto the Manufactinent, according General Aviation turers' and Traders' Association based near Aylesbury.

Most of these airfields are within easy access of centres of population and can provide a rapid transport link for business executives wishing to avoid the queues and the hassle of major airports such as Heathrow.

The association says that general aviation in Britain is not dominated by leisure and sport flying. These activities account for only 10 per cent or less of all light aircraft operations in the country compared with business aviation, which

Turbo jets and turbo props were the only two categories of light aircraft to show growth in the U.S. last year

accounts for 65 per cent of all the hours flown by light aircraft. Training accounts for 20 per cent of the time and agricultural aviation and other Skytrain. aerial work about 6 per cent. Business aircraft are "timetween points which may have no formal air connections, the cial losses are containable, the association says. At the same craft makes it possible for business executives to tailor their journess so as to fit complex multi-stop journeys into their working days, Provided the company has

done its sums this approach could save time and money and could increase substantially the productivity of the executive. The company has to compare business aircraft costs with the total costs of using conventional transport, a commercial airline possibly a night in a hotel because a return flight is not pos working day.

Air taxi companies offer a similar service to business executives but without the executive incurring the costs of owning a business aircraft. Britain has over 100 specialist

companies offering air taxi services based on 250 light airmuch as general aviation air piston, turbine and jet aircraft craft on average in 1980, despite in helicopters. This fleet carries over half-a-million passengers and 4m kg of freight throughout Europe, Africa and the Middle East each year.

prop aircraft with over 13 seats an 2d hoc basis or on regular flew five times as much as the charters to provide a personal cial airlines do not offer.



150-seater airliner in which several manufacturers are showing considerable interest for the

Bankers had predicted that \$160bn in new cash would be needed to purchase aircraft worldwide in the next decade—but these estimates are being scaled down, as Alan Friedman reports.

# Airline financiers are taking an increasingly cautious viewpoint

Bank's aérospace finance de-They seem somepartment. coming from an acrospace banker seated at a table just yards away from a desk-top model of Sir Freddie Laker's

Laker Airways last February and although Midland's finanpsychological damage is not. Beyond the unfortunate tale

collapse.

growth of many airlines in Until recently the accepted

\$160bn in new cash would be craft makers may remain hope- attractive terms than Midland,

Banks such as Citicorp, Chase Manhattan, Midland

"OUR MOTTO this year is role in the financing of new and backed by guarantees from the don't be brave, be smart," replacement aircraft purchases Export Credit Guarantee Dedon't be brave, be smart," replacement aircraft purchases Export Credit Guarantee De-These words come from Mr but every aircraft banker in the partment (ECGD). A further 15 Tony Cooper, head of Midland business is becoming increas-

model of Sir Freddie Laker's "natural decline" in the numSkytrain.

Mr Cooper's bank has for the next few years. "We the precarious state of several received a fair amount of are not deliberately running airlines." This does not threaten with the precarious state of several criticism over the collapse of our book down but the precarious state of several similars. This does not threaten with the precarious state of several criticism over the collapse of our book down but the precarious state of several similars. This does not threaten machines," offering the con- criticism over the collapse of our book down but our book is Midland if there are state

> of Laker Airways, however, is the more alarming financial condition as a whole of the world airline industry. Braniff (Big Orange) has declared bankruptcy and several other U.S. airlines are facing similiar

> The recession continues to affect air travel. The dramatic recent years is resulting in a text-book case of overcapacity. All this in turn raises a large question mark over the hitherto glamorous business of airline

wisdom was that of a total of required over the next decade to finance the purchase of aircraft worldwide. While the air- Lloyds was able to offer more ful about the long-term outlook. But Midland insists it is still

continue to play a prominent lending around 80 per cent is

ingly cautious.

Midland Bank, as the desighow rather more than poignant nated UK agent for the financ- independent carriers. ing of aircraft from Airbus Industrie, is a case in point. Mr Cooper reckons there will be a the Rock of Gibraltar." running down. Not only business: other banks are training their sights on the market leaders. In the UK both

> Bankers are likely to seek more and more guarantees for aircraft loan packages

Lloyds Bank and National Westminster Bank have recently taken business away from Mid-

Lloyds Bank, which says it vill be taking a more aggressive stance, recently completed an \$85m 10-year credit for hir India as part of an Airbus finance package.

For a variety of reasons

state carriers and the balance, according to Mr Cooper, 12 to

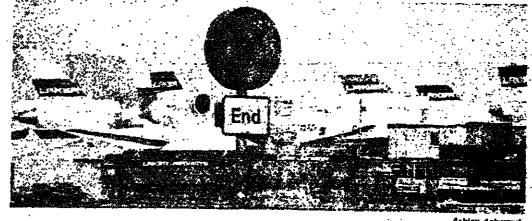
Mr Cooper claims that his aircraft book "is as solid as guarantees.
"Where I've got ECGD cover

I shrug my shoulders and don't care," says Mr Cooper. "Where I have to put up front end money I'm damn cauttous," he adds with a smile.

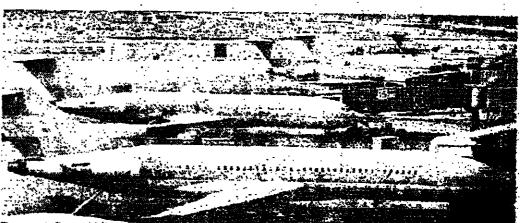
Airbus deals Midland handles 20 per cent of the financial package normally; the rest is shared among French and West German banks. Government guarantees on Airbus transactions usually cover \$24 per cent of the purchase price.

Looking ahead it would seem tha; bankers will seek more and more guarantees for aircraft loan packages. New money may come from airlines' internal resources in part but the bulk will have to come from government guarantees, grants and from burrowings on the international capital market.

Being an aerospace banker is still a challenging career but may not be quite as enthrailing a proposition as it was during the go-go period of the bankers are now scaling down predominant when it comes to last decade. Mr Cooper still this estimate as too optimistic, export credits for Airbus deals, takes pride as he strides out of Since 1979, when Midland set Midland Bank with a new air-Bank, up its specialist Airbus depart- craft finance package tucked Credit Lyonnais and Bankers ment, it has extended a total of under his arm, but his new Trust in airline finance may \$2bn of aircraft loans. Of this motto echoes eerily behind him: "Don't be brave, be smart."



Laker Airways aircraft standing outside their hase at London's Gatwick Airport. Beyond the unfortunate tale of Laker Airways is the alarming financial condition of the world's airline



CATEGORY SHORT-RANGE (up to 2,000	TYPE	CURRENT MAKER	ENGINES	NUMBER OF PASSENGERS ! (approx.)	TYPE	POSSIBLE FUTURE MAKER	ENGINES	NUMBER ( PASSENGE
nautical miles	One-Eleven	British Aerospace	Two	89-119	7 DASH 7	Boeing	Two	(approx.) 150 (c)
approx.)	F-28	Fokker	Two	65-85	A-320-100/200	Airbus Industrie	Twe	150 (c)
• .	DC-9-30/80	McDonnell Douglas	Two	. 105-172	D-3300	McDonnell Douglas	Two	1 <b>50 (c)</b>
•	737-200	Boeing	Two	115-130	DC-7 RE(a)	McDonnell Douglas	Two	105
	737-300	Boeing	Two	121-148	TA-9-100	Airbus Industrie	Two	410 (c)
	747 SR*	Boeing	Four -	450		•		
	146-100/200	British Aerospace	Four	71-109	<del></del>			
MEDIUM-RANGE (Up to 3,500		Boeing	Three	140-189	DC-10 Derivatives	McDonnell Douglas	Three	250 (c)
	757-200	Boeing	Two	224	767 Stretch	Boeing	Two	250 (c)
nautical miles	767-200	Boeing	Two	255	TA-9-200	Airbus Industrie	Two	400 (c)
approx.)	A-300-2/4/600	Airbus Industrie	Two	220-336	727 RE(a)	Boeing/Lockheed	Two	140-180
	A-310	Airbus Industrie	Two	195-255		•		
	DC-10-10	McDonnell Douglas	Three	250-400	•	•		
	L-1017	Lockheed	Three	250-400	· <del></del>		<del></del> -	
MEDIUM-RANGE (Up to 3,500 nautical miles approx.)  LONG-RANGE (Over 3,500	747-100/200	Boeing	Four	452	767 HGW(b)	Boeing	Two	250 (c)
	747 \$P§	Boeing	Four	330	DC-10 Derivatives	McDonnell Douglas	Three	250-400(c)
	DC-10-30/40	McDonnell Douglas	Three	250-400	747 Derivatives (d)	Boeing	Four	500 (c)
apprex.)				<del></del>	T4 33 300 (200	A *-1 In decay		

Airbus Industrie A-300C 1 Numbers of passengers are approximate only: configurations vary very widely between airlines and according to aircraft version used. Short Range.
Short

Lockheed

McDonnell Douglas

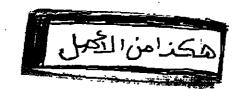
TA-11-100/200

Airbus Industrie

220 (c)

220 (c)

Boeing 727 aircraft of Braniff International at Dallas/Fort Worth, Texas



Lynton McLain examines the scale of spending forecast for the expansion of international airports.

# Airport planners remain optimistic

WORLD AIRPORTS are emerging airports is likely to be worth trading periods for many years. 2000. Passenger and air freight diate return to the buoyant rates same timescale as planned.

of growth of the late 1970s. Nevertheless, airport planners programmes are underway in predict confidently that growth most countries of the developed will return to the passenger and and developing world. Some of air freight markets. This con- the projects, such as that for fidence is supported by recent the second Bangkok internamodest returns to growth al- tional airport, are on green-field ready noted, ahead of this year's sites and will involve multi-

Norman Payne, the chairman of the British Airports Authority, his latest annual report. Airport projects in the 1970s his latest annual report. Airport projects in the 1970s and 1980s have involved, to a reater and greater extent, specialised groups of international airport consultants. In Europe these include Aeroport of Paris and Sofreavia of France, the Frankfurt Airports This showed that passenger traffic at the authority's seven airports in the UK increased by 1 per cent in the 1981-82 finanzial year despite the "continued depressed state of world economies and only tentative indications of an improvement in the UK's economic health," Mr Payne reported.

### · About-turn

The modest about-turn in the fortunes of airport operators so-far this year is illustrated by recent figures for traffic at Heathrow Airport, London, the BAA's main airport and still the busiest international airport in the world, with 22.5m international passengers last year despite the slump in demand for

The sharp drop of 9.5 per cent in air transport movements at Heathrow in 1981 compared: with the previous year has been reversed in recent months and in June aircraft movements Bau, of Cologne; Lufthansa were 9 per cent higher than in German Airlines, Cologne; and

Similarly, the 3.9 per cent is to be managed by Airconsult, drop in the number of passa subsidiary of Flughafen sengers at Heathrow last year Frankfurt-Main, the Frankfurt compared with 1980 has been Airport Authority. reversed this year, with pas-

ponding month last year. that traffic is returning to and historic patterns of growth, with developing air transport. They also underline the need systems. for increased airport capacity. and for the expansion of exist- north west Tunisia. The airport BAI is on the short list for

ing from one of their worst not less than \$20bn by the year

Much of this spending was volume plummeted last year, committed before last year's Traffic this year, however, is slump in demand for airline picking up slewly although services and all the signs there are few signs as yet that suggest that developments are airports are set for an imme- likely to go ahead on much the

Major airport development ready noted, ahead of this year's traditional summer peak, and million dollar programmes. Other projects are more modest cast for airport expansion plans.

The underlying strength of air transport was noted by Mr Norman Payne, the chairman of handling, the largest Authority are recierts in the 1970s.

France; the Frankfurt Airports Authority of West Germany; NACO, the Netherlands airports consultancy organisation; and the British Airports Inter-

national BAI group. BAI is a partnership of air-port specialists from the British Airports Authority, which runs seven of Britain's airports, and International Aeradio (IAL), the airport management consultancy and equipment maker majority owned by British

An international consortium recently won a \$1m contract to carry out a feasibility study for an international airport in Macau. Members of the cousortium are Consulplano of Lisbon, Portugal; China Air-port Engineering Consultants (CAAC) of Beijing; Stradbag HLT, Wiesbaden. The project

Typical of the international senger volume 6 per cent up in airport projects currently June compared with the corres- underway are those involving onding month last year.

BAI. The group is working on
These returns are encouragover half-a-dozen major airport ing signs for airport planners projects, most of them in small medium-sized countries

The group starts work in Forecasts from airport September on preliminary authorities suggest that the designs for a new international tourist airport at Tabarka in and at Agadir, Morocco,

AIRPORT ACTIVITY 1981

Airport	ort Country		Terminal passengers	Cargo (tonnes)	
	<del></del>	000's change	000's change	% 000's change	
Amsterdam	Netherlands .	138.1 - 3.9	9,669 + 2.9	329.7 + 3.7	
Brussels	Belgium	81.7 - 4.9	5,060 + 2.0	156.6 - 5.4	
Copenhagen	Denmark	134.3 - 7.5	8,192 - 4.5	139.6 + 0.1	
Frankfurt	West Germany	207.0 - 0.9	16,953 + 0.5	600.0 — 0.9	
Geneva	Switzerland	68.5 - 1.4	4,171 + 5.5	32.7 - 5.5	
Glasgow	Scotland	49.3 - 3.1	2,267 - 3.1	12.4 - 3.7	
Lisbon	Portugal	38.0 - 3.8	2,940 + 5.0	46.2 - 5.7	
Loudon (Gatwick)	England	125.1 + 1.3	10,729 +10.5	182.5 +10.4	
London (Heathrow)	England	247.1 - 9.5	26,400 - 3.9	450.4 - 3.8	
Madrid	Spain	114.4 - 7.5	9,960 - 1.8	151.0 + 4.8	
Paris (Charles de Gaulle)	France	102.0 - 0.5	10,935 + 8.4	447.3 +11.2	
Rome	Italy	134.6 - 6.6	10,921 + 2.0	134.5 -11.3	
Atlanta	U.S.	523.1 - 6.4	37,594 - 6.3	329.4 + 5.7	
Chicago (O'Hare)	U.S.	554.5 -11.2	37,976 -14.5	792.0 — 3.0	
Dallas (Fort Worth)	U.S.	445.8 + 2.3	23,533 + 7.2	218.4 +10.8	
Hong Kong	Hong Kong	55.4 + 1.5	8,224 + 20.4	290.3 +12.6	
New York (JFK)	U.S.	228.0 - 3.4	25,752 — 3.9	1,191.5 + 1.9	
Washington (National)	U.S.	193.5 - 4.5	14,175 - 2.5	20.1 -21.5	
Sao Paulo	Brazil	102.9 + 2.2	5,621 + 3.7	69.2 +27.4	
Tokyo (Haneda)	Japan	224.0	21,235 + 2.0	202.3 + 4.3	

is expected to be operational in design work for a new green-1986. BAI is also working on a field airport. to the year 2030.

Source: British Airports Annual Report 1981-82.

The group is also involved in work for the new Baghdad airport, Iraq and is training 400 Iraqis in airport management techniques.

Elsewhere, airport feasibility projects are under-way in Hong Kong, where plans are still in hand for a major new international airport, possibly at Shep Lap Kok on Lantau Island, where the total cost of replacing Kai Tok airport could be HK\$7bn, or even more depending on associated infrastructure costs,

In Malaysia a national air-

ports systems plan for three secondary international airports is being considered; in the Cameroons BAI is involved in aspects of the design for the The new consultancy has proposed green-field airport at invited the UK Civil Aviation Bamenda; in Jordan the new Authority, Kleinwort Benson Queen Alia International Airport built by John Laing and Lybrand, management con-of the UK, is to open soon, sultants, among others to be the

The largest project the interpre-feasibility study for a The largest project the inter-second international airport for national consultancy groups are Tunis, to provide capacity up bidding for at the moment is to the year 2030. bidding for a second international airport at Bangkok. This proposal, the so-called "Cobra Swamp" project, is for a new major international gateway airport for Thailand, to be built at Nog Nua Hoa, to handle 10m passengers a year.

Competition for a major share in this project is intense, BAI and five UK civil engineering consultants joined together to form the British Airport Consultancy group at the end of last year to make a single concerted British bid for contracts to carry out the main economic study and the preliminary and final design studies for the Cobra Swamp " airport.

### Sub-contractors

(merchant bankers) and Coopers sultants, among others to be

ancy for the project.

Existing airports last year were dominated, however, by the general decline in passenger and air freight activity, with airports in Europe, the U.S. and elsewhere almost all hit by the

general fall in air transport

movements. In Europe the fortunes of airport operators ranged from the the skump in demand and in substantial fall of 26.4 per cent June, the latest month for

Reina Sofia airport. growth last year were those airports with relatively modest cent increase in passengers; Istanbul with a 24.8 per cent increase in passengers; Nice with a 9.8 per cent increase in passengers; and Stockholm, with

a 8.7 per cent increase in Downturns in traffic volume were reported by most airports serving industrial and commercentres throughout the world, while airports serving holiday

handled more people last year than in 1980.

Other centres with greaterthan-average air traffic activity included cities with oil-related business, including Houston. Texas, with 8.5 per cent more passengers last year, and Mexico City, with a 14.7 per cent in-crease in passenger volume.

The general deckine in air transport movements at U.S. airports last year, however, has to be seen against the background of the strike by U.S. air traffic controllers. The strike disrupted normal patterns of airline operations and increased the volume of private and busi-

ness aircraft traffic.

The extent of the slump is clear when last year's 38m passengers at Chicago O'Hare International Airport are com-pared with the 49m passengers who used the airport in 1978, its peak year.

Nevertheless, the City of Chicago Department of Avia-tion is confident about future demand and has a master plan to boost capacity at the airport to about 90m passengers a year by the end of the century.

Despite the downturn in traf-fic world airports still handle and thousands of tonnes of freight last year. Chicago O'Hare airport was the busiest in the world in terms of terminal passengers, with a total of 37.9m domestic and international passengers, a volume rivalled only by Hartsfield Atlanta International Airport, with 37.5m passengers last year, 6.3 per cent down on 1980. Hartsfield is continuing to feel in air transport movements at which figures are available, Prague airport, Czechoslovakla, passenger numbers dropped by to the incerase of 9 per cent in aircraft movements at Tenerife's pared with June 1981.

All this decline in demand Generally the airports with for air services has not stopped rowth last year were those air- almost all countries, including the U.S., from investing in new traffic flows, such as Dublin with terminals, new runways. ad-a 5.8 per cent increase in pas-vanced passenger handling facia 5.8 per cent increase in pes-sengers. Helsinki with a 6.1 per lities and complete new airports, sometimes for prestige purposes but generally to handle future demand for air

In Britain the British Airports Authority (BAA) has forecast an average annual growth rate of between 4.5 per cent and 6 per cent for air traffic into and out of the UK for the rest of the 1980s. A slightly lower rate of growth, centres generally between 3 per cent and 5 per £12.5m earmarked for new



Part of the new Hartsfield Atlanta International Airport. claimed to be the largest passenger terminal complex in the world and second only to O'Hare in Chicago in total number of passengers handled each year

cent a year, is forecast by the roads and car parks authority for the 1990s.

To help meet this expected increase in demand for sirport capacity, the BAA plans to spend £850m (March 1982 prices) on its seven airports by the 1985-87 financial year. This expenditure is on top of the £237.8m spent by the authority in the last financial year (1981-82) to raise capacity and to boost operational efficiency

at its airports. The BAA plans to spend the greatest part of this future exvelopment of the third London airport at Stansted. This will involve £200m for a new terminal building and other facilities to raise the capacity of Stansted from its present 1m passengers a year to 15m passengers a year under the first phase of development. This would be based on the existing single runway at Stansted.

The BAA would like to add a second runway eventually to boost the capacity of Stansted to 50m passengers a year.

### New Terminal Four

The second largest investment project earmarked by the BAA under its current corporate plan involves spending £173.9m on the new Terminal 4 at Heathrow Airport, London. Work on this project to boost capacity at Heathrow from 30m to 38m passengers a year by the mid-1980s has already

started. The authority also plans developments at the existing three terminals at Heathrow, involving over £40m of further investment. Motor traffic flow in and around the airport is also to be improved, with

The authority wants extra and £151.5m has been allocated in the corporate plan for the first phase of the proposed new Terminal 2 at Gatwick. The Terminal has been recommended for approval after a public inquiry but the go-ahead from the Government is still

awaited. The BAA also plans to spend several millions of pounds at its four airports in Scotland-Edinburgh, Glasgow, Aberdeen and Prestwick. The authority acknowledges that it will have to borrow to complete this £850m investment programme but it still hopes to self-finance at least 60 per cent of the total programme.

At the same time, the Authority has set up a working group with the Treasury and the Trade Department to study ways of providing private capital for the investment pro-gramme over the next five years. Tthe issue of a performance bond " linked to the authority's profits is one idea. The other main proposal to be considered is the possible provision of equity finance through a subsidiary company. This would then participate in the authorities' concessionary income - duty-free goods, rents and franchises - on a royalty basis. The authority would like to raise between \$50m and £100m from external sources.

Elsewhere in Britain the 23 main local authority airports expect to spend a total of £50.5m in 1982-83 on airport developments. More than 12.5m passengers are expected to use these provincial airports, a rise of over 4 per cent compared



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Aerospace developments around the world: here and on the following six pages, FT correspondents examine advances being made by individual nations.

# Fighting hard to keep pace with the West

DEVELOPMENT of a modern and diversified civilian and military aerospace industry has long been a top Soviet priority and proof to itself and others of the scientific and technological progress made by the Soviet Union since the 1917 revolution.

It is becoming increasingly clear, however, that the Soviet aerospace industry is finding it increasingly hard to keep up with the pace of technological change and development generated by engine and airframe companies in the West which, in turn, are being forced to pool resources and rationalise their produc-tion in order to find the huge sums required to develop new fuel-efficient engines and air

Traditionally, Soviet clvilian aircraft tend to lag a

profit in

Despatch Delays and Turnbacks.

There is no

unnecessary turnbacks.

Revenue loss, profit loss, passenger inconvenience, threat to the

Gravings systems make a positive contribution to aircraft operation

overheat detection system, it checks all system parts, detects fires.

and monitors nacelle temperature. It is maintained only 'on condition'

systems - most of the world's best airlines do. Air Forces use Graviner

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and provide extra benefits with lowest cost of ownership.

Graviner FIREWIRE is the world's most reliable engine fire and

without the coatly need for periodic pround checks. It meets all

Specify Graviner - first for aviation fire detection and suppression

alrline's operational credibility - all are consequences of unscheduled

generation behind their western counterparts, the latest example of this being the belated introduction of the Ilyushin IL-86, the Soviet Union's first wide-hodied "Airbus" on domestic and international routes over the past 12 months.

Now that the 350-seat, fourjet aireraft is in service to Western capitals, such as Paris and Madrid, the Soviets have finally agreed to allow Western wide-bodied alteraft to fly through Soviet airports.

The first Jumbo jet of Air Japan inaugurated a new wide-body service from Tokyo across Siberia via Moscow to Western Europe in April and Air France now also flies Airbuses to the Soviet capital. In return, regular Aeroflot IL-86 flights link Paris to both

Although the Airbus is now operational, realisation of its full potential awaits future modifications-including more powerful and more fuel-efficient engines than the the 28,000 lb thrust motors powering the current models.

On most flights Aeroflot aircraft fly with the maximum permitted passenger loads. Tickets are still relatively cheap for Soviet passengers and vast distances make air transport the pre-ferred means of transport for millions of Soviet citizens.

Over 530m passengers will be carried by Aeroflot over the current five-year plan period at seat capacity ratios

### SOVIET UNION

which would make fortunes for Western airlines forced by competition to slash fares and still fly at around 60 per cent capacity.

Despite high capacity utilisation, however, the high fuel consumption of most Soviet aero-engines has stimulated development of more fuelefficient variants and these have been introduced on modified versions of the Tupolev TU-154 intermediate-range tri-jets and TU-134 twin-engined jets. A newfuel-effi-cient engine, code-numbered the Lotarev D-36, has also heen developed to power the new 120-seat Yakovley Yak-42 tri-jet and the new high-wing STOL aircraft, the Antonov

Fuel consumption of the D-36 engine is claimed at 34 grammes of fuel per passenger/kilometre.

But the most pressing need of the Soviet civilian aircarft industry is for the introduction of high-efficiency by-pass engines similar to those produced by Rolls-Royce and the major U.S. and European engine consortia.

This need is highlighted not only by problems with the Soviet Airbus but also by the worrying frequency of crashes suffered by the IL-62 long-distance airliner with its four heavy and thirsty rearmounted engines.

Although heavier and less efficient than comparable aircraft, Soviet Western

which is needed for the harsh weather conditions and frequently non-tarmac runways of many Soviet provincial airports, especially on internal feeder routes.

But export sales so far have been relatively modest and concentrated on other Comecon airlines, including Cuba and Vietnam. Export sales in 1980 were around 600m roubles (\$750m).

But considerable interest has been generated in the 40-ton capacity, high wing, four jet IL-76 civilian and military transport aircraft, of which several have been sold to Iraq, Libya and other countries

The new Yak-42 intermediate range aircraft with rough airstrip take-off capacity and high climb rate also has considerable export potential, as did its predecessor, the smaller Yak-40.

Avia-Export, the Soviet aircraft sales and service organisation, also has high hopes for its AN-72 STOL aircraft, which attracted much attention at the Paris Air

Soviet helicopters also have a high reputation, reflecting the resources which have been channelled into an area with major military and civilian applications-specially in transporting heavy or bulky equipment to mining camps and pipeline installations often sited in trackless wastes or permafrost areas of the east and far north.

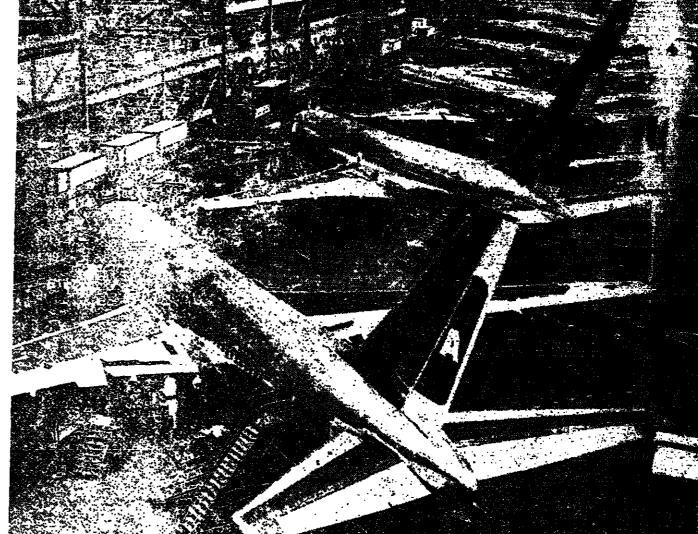
Development of hovercraft, dirigibles and other "lighter than air" craft is also proceeding apace.

Meanwhile, in space the Soviet Union continues to send up large numbers of military and civilian satellites for a wide range of purposes and continues with its Soyuz manned orbital space platform programme.

A Frenchman-Jean-Louis Chretien—and two Soviet Cosmonauts successfully rendezvoused in space with the Soyuz-7 Station in July, the first East-West space venture since the Apollo-Soyuz linkup between U.S. and Soviet spacecraft in 1975.

The Soyuz programme continues, as does military development of killer satellites, orbiting laser guns and other "Sci-fi" horrors.

Anthony Robinson



Boeing 767 let airliners seen in production at the company's Everett, Seattle, factory where 747 Jumbo jets are also built. The 767 is one of several new types of let airliner under development and in production by Boeing, the others being the 757 twinengined aircraft; the new Series 300 version of the 737; and the "extended upper deck" version of the 747 Jumbo itself

# Surprises on all fronts

industry, and therefore for the aircraft builders, is the outlook for world oil

The fall in prices in the early

THE PAST twelve months have brought a series of significant and sometimes bewildering developments for the U.S. aircraft industry. No doubt the lights are burning late at night in the offices of the major manufacturers, as they piece together the likely prospects for luture

On the civil side, the final collapse of Braniff and, to a lesser degree, of Laker Airways, may have added some more unusable capacity to that ghostly air fleet sitting in the Californian desert, and elsewhere, but they have also checked to some extent the industry practice of virtually suicidal price cutting.

On the military side, the Reagan Administration's defence policies, and the success of the testing period of the Space Shuttle, all augur well for the future of the Aerospace industry. Finally, the Argentine conflict has added a joker to the pack, by stimulating widespread debate inside the U.S. gefence industry over its implications for a whole range of minitary and naval hardware

and strategy.
The latest major U.S. airlines indicated that progress is being made towards a return to health. Pan American World Airways, which has been a cause of some nervousness ever since it was caught out by the first upsurge in oil prices in the post 1973 period, has cut its losses in hait in the second quarter, and confirmed that it expects to be in profit in the current three-month period.

Similar trends are indicated by the other major carriers, and this will be good news for the major manufacturers whose order books for civil aircraft are not all that healthy at present.

But there is one warning note for the aerospace manufacturers from the analysts of the industry. Goldman Sachs, the Wall Street investment house, is among those who warn that the route back to health for the prudent airline manager will be via further control and cutting of costs. It will almost certainly not be via seeking further funds for new aircraft to fly new routes.

The demise of Braniff and Laker stand as an awful warning to industry managers of the dangers of over-investing in capacity in the hope of capturing

the traffic to pay for it. The recovery in the airline business is still very fragile. Much depends on the general recovery in the general economic cycle in the U.S.—given that airline customers are mostly business travellers. Should the U.S. recession be slower than expected in turning round-and recovery has been postponed several times, then some major airline names could be back in trouble quite quickly.

Also unsettling the future for the

part of the year was a major factor in improving airline costings, and any reversal of the trend would have the same effect on the opposite side of the scale. But on the labour front, the airlines appear to have more factors in their The failure of the air con-

trollers' strike is likely to have repercussions well beyond the specific wage claim Most airlines are seeking widespread. changes in manning levels as well as pay structures. Once again, Braniff's collapse

played an important role as well-by leaving many highly qualified airline staff looking for work outside the industry—fast food franchising seems to be a favourite. The analysts of the industry tend to

be in two minds. On the income side, passenger revenues now look more secure than a year ago, and on the cost side, hoth oil and wages seem to be going in the right direction-for the air-

lines, that is. But competition is still fierce, especially around Dallas, where the Braniff traffic is up for grabs, and any serious

### UNITED STATES

downturn in business could bring more grief. Whatever happens, the airlines are not likely to borrow money to buy aircraft if they can possibly manage

Unfortunately, order books for new commercial aircraft are already looking thin. Pan American, for instance, has nothing scheduled for delivery next year, and neither has Continental, which is now effectively merged with Texas Air. Both Eastern Airlines and Delta have orders in the pipelines for Boeing 727s and 757s, but the rest of the picture is rather bleak. In 1984 and beyond, the

order books appear stronger. But turning to the opportunities for military sales, the outlook is much more favourable. The success of the Space Shuttle testing in May was of dual significance to the aerospace industry.

The likely benefits of the \$6bn budget

of the National Aeronautics and Space Administration for space-related activi-tics have been well discounted inside the aerospace industry. But the latest good news is that the Defence Department's budget for similar activities now exceeds NASA's at \$8bn, and is still climbing. Future space missions will be well backed by defence spending and this will clearly increase the flow of dollars to

those companies already well into the more directly military defence budgets, It will also bring growth to the Space Shuttle consortia which include such names as Aetna Life and IBM.

Some of the military spin off has aiready shown itself in the shape of \$24m and \$47m modifications to Cape Canaveral and Mission Control at Houston respectively, for the increased security required by the Defence Department.

The outcome of the Senate's vote last June on the National Budget is expected to be a rise of 31 per cent in military procurement spending in the current year. The budget authority figure for defence may reach \$218bn this year, and rise to \$252 on in 1983.

Lockheed, which has become a purely military contractor since it discontinued the L-1011 commercial aircraft, is well placed in defence by virtue of its mono-poly of construction of the intercontinental ballistic missile in its sea-launched

It is also strongly placed in overseas military sales, which are a likely area for further expansion. With these programmes still active. Lockheed as unlikely to suffer from the Senate's opposi-

tion to the C-5 project. A major growth area for mulitary aerospace lies in the field of aircraft electronics surveillance where the Middle Eastern and South American countries are keen buyers. The Sikorsky Hencopter, made by United Techno-logies, and the aircraft surveillance

U.S. defence companies are proving in-creasingly altractive to countries not necessarily in the big financial league. This trend has been strengthened by the Argentine conflict which showed only too clearly the effects of such relatively cheap equipment as radar surveillance and heat seeking missiles on large

systems sold in Europe by the smaller

targets such as warships. Defence spending should ensure a firm future for the aerospace industry this year and for some years ahead. The benefits may not be spread equally throughout the industry, but few of the major companies will be without a share of the take. The smaller electronics defence manufacturers, like Loral of New York, or Wyman-Gordon or Hexcel, all with major shares in specialised markets, may outshine some of the better-known

names.

If orders from the commrecial airlines also take off in the mid-eighties, and there certainly is an "if" in the case just now, then there could be some spectacular gains by such companies as McDonnell Douglas with a foot in both

Terry Byland

# Sector still fairly buoyant

### FRANCE

AIRBUS, Mirage, Exocet. These three magic words alone are enough to conjure up the recent success story of France's aero space business. For all the problems hitting airlines these days, the mood among French manufacturers is still fairly buoyant.

With a growth rate of some 10 per cent in real terms to show for last year, aerospace is one of the rare industrial sectors in France to have continued being a source of increased employment. Foreign orders rose by 30 per cent in 1981. and exports-mostly militarymake up more than half of total

from Renault as the profitmaking showpiece of the French nationalised sector.

While the ill-fated advanture of Concorde comes to its close, new status symbols have arrived to replace it: the first French the three-man Soyuz T6 mission manufacturers can remain and the company is confident earlier this summer, and, next

month, the first commercial The State's role in the But not everything is rusy, launching of the largely French-industry has been considerably. Its highly successful helicopter backed rocket Ariane. Europe's reinforced since the Socialists division, for one, is especially rival to the Space Shuttle.

come to be overshadowed by some hig questions. First Matra, the missile specialist, among these is the impact of the depression in civil aviation, communications group, being coming at a time when the French authorities would like to see the military side of the sector playing a less preponderant part.

In the co-operative grammes which have been given both to Airbus and Ariane, there is the question of the next generations, still to be

There is the question, too, of whether the momentum of Aerospatiale emerges with the European collaboration can be regained; Gen Jacques Mitter-rand. Aérospatiale's chairman domain—and almost 30 per cent turnover.

Aérospatiale, the biggest rand, Aérospatiale's consumant manufacturer, has taken over and head of the industry association Gifas, has expressed association Gifas, has expressed association Gifas, has expressed concern about the lack of new programmes.

Finally-another issue raised cosmonaut, who took part in the question of whether French increase is expected this year,

ival to the Space Shuttle. took power last year, with its vulnerable, since it exports 80 share in Dassault-Breguet being per cent of its production and increased to a majority and brought under state control.

> More recently, Aerospatiale has been given the senior role in a regrouping of equipment suppliers. The private-sector Crouzet and the public-sector Siona were concerned in two previous link-up plans in the last 10 years, but neither of

them came off. Under the new plan, backed by the Ministry of Defence,

of Crouzet. Aérospatiale's sales of FFT 16.5bn (\$2.4bn) last year accounted for 38 per cent of the whole industry's turn-over. by Gen Mitterrand, as a With its order book now challenge to his elder brother amounting to almost three times in the Elysée Palace-there is that sales figure, a further big

of staying in profit

relies heavily on the U.S.

One new civil aircraft project is already on the rails, the 42-to-49-sealer "ATR 42," a high-wing turboprop being developed

with Aeritalia. First deliveries are scheduled for late 1985, and half a dozen companies have already placed

provisional orders. three from the U.S. A decision on the next Airbus

which the French partner had hoped for by the summer, is still being awaited, however. The wide-bodied Airbuses-the A300, already in service and the new A310, which is undergoing flight 'ests have made big inroads into non-U.S. markets and the venture appears to be well on its way towards paving

int itself. But much will hang on fining the launch of the 150-seat A320, the short-to-medium range aircraft which has bethe priority project at

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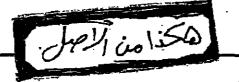
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# impact of recession

ACTIVITY in Britain's aero- the sale of spares for aircraft, 27 aircraft for nine operators with market developments, and space industry remains at a engines and equipment pro- in seven countries, and produc- a Series 800 version could

high level... the world-wide business recession has damped income. down demand for civil pro- Nevertheless, the industry 1984 if demand warrants.
ducts, military aircraft activity has recognised the need for The BAe 148, British A West Germany and Italy, the production rate of the Tornado multi-role combat aircraft has been held down, it is still in-tended to build the full 809 nircraft, and the programme

will now take longer to fulfill than previously planned. In other directions, work on the additional Sea Harriers to replace those lost in the Falk-lands war, and work on the 60 AV-8B Harrier (GR Mark 5s) for the RAF and on the UK's share of the 336 AV-8B aircraft planued for the U.S. Marine Corps, is now beginning to make

At the same time, much activity on both existing and new civil programmes is under way, with production of the BAe 146 regional jet airliner now increasing, wing produc-tion for the A-300 and A-310 Airbuses being expanded, and the prospect of work on the new A-320 150 seater version of the Airbus also looming.

The industry's vigour is reflected in the accounts of British Aerospace for 1981. This now partially denationalised aircraft, missiles and space group is the second biggest aerospace manufacturer in the Western World after the U.S., employing over 79,000 workers.

Last year, BAe's sales amounted to £1.66bn, against £1.42bn for the previous year. with exports accounting for over £1bn. The trading profit was £95m, and orders on hand at the end of the year amounted

overseas sales estimated at about £2.6bn, compared with £1.78bn in 1980.

Although inflation played a part in this increase, the 1981 figure also reflected the high level of activity in various parts starting in November. of the industry, especially in

grammes begun some years ago and still generating substantial

budget problems in the UK, with which to keep factories busy when present work programmes mature and start to run down.

Although there is a heavy backlog of several years' work in the industry, on both military (Tornado, Harrier and Hawk) and civil (Airbus) account, with production of Airbus wings increasing to meet current contractual commitments, the need for new programmes remains strong. Aircraft and engines take a long time to come to fruition from initial conception to operational service some-times as much as seven to 10

### BRITAIN

years-and in order to keep factories fully employed through the 1990s, the industry must start planning now.

least three more under con-sideration. Those already with an ave to come. sideration. Those already With an eye to the longer-moving through the factories hard the 80-109 seat British Aerospace 146 four-engined plating further improvements liner; the Short Brothers Type short-haul airliner. 360 36 seat twin-engined feeder Westland W-30 civil helicopter.

programme, and is expected to self). gain its Air Certificate this For the BAe 125 Jet, the September, with deliveries existing Series 700 version is

tion is currently running at two emerge in the not too distant aircraft a month, with plans to future.

At the same time, BAe is

remains comparatively strong, some new programmes in both space's biggest indigenous next major international air. While as a result of defence the civil and military spheres, commercial aircraft investment liner development, the A-320 the 146 stand at 10 aircraft firm, wings for the A-300 and A-310 with another 12 on option, Airbuses, but also having an while production is building up

to three aircraft a month. The Westland W-30 is Britain's answer to U.S. civil helicopters, in what is expected to be a burgeoning market through the 1980s and beyond. The aircraft is already in service with British Airways in North Sea oil and gas industry support operations, and Westland is hoping for substantial orders in the years ahead.

So far, the recession has damped down demand for these and other civil aircraft, British and foreign, but the UK industry hopes, as do other world aerospace industries, that when the recession ends, there is likely to be a flood of demand This is being done. Four new for these modern, more fuel-civil aircraft types are now in efficient and advanced an advanced state of develop- technology aircraft, and that

regional jet airliner; the to two other of its current smaller, twin turbo-prop range of civil aircraft—the BAe engined BAe Jetstream 31 125 executive jet, and the BAe "feeder" or "commuter" air- 748 twin-engined turbo-prop

While an extensive proand commuter airliner, and the gramme of improvements to the existing 748 is under way, the All of these aircraft are now BAe is considering plans for a to close on £4bn.

Bying.

During 1981, the UK industry

as a whole achieved another

Certificate of Airworthiness Prop. or ATP, with new ennew annual export record, with during the summer. and gines from Pratt & Whitney to deliveries to customers are now replace existing Rolls-Royce under way. The Shorts 360 is Darts (unless Rolls-Royce can also nearing the end of its test provide an improved Dart it-

selling well, but the group has Orders for the 360 stand at been keeping in close touch

1984, if demand warrants. studying the various options
The BAe 148, British Aero- available in participating in the commercial aircraft investment liner development, the A-320 150-seater planned by Airbus programme, costing up to 150-seater planned by Airbus £350m, is also likely to win its Industrie, the European air-Air Certificate by the end of liner manufacturing consortius year, clearing the way for tium in which BAe has a 20 per deliveries. So far, orders for cent stake, building not only Airbuses, but also having an overall design consultancy role.

The proposed A-320 is likely to be the most significant new airliner programme in Western Europe for the rest of this century, and for that reason alone it is considered by many to be imperative for BAe to win some share of it. The precise share in terms of financial investment and the amount and type of work to be undertaken by BAe, is still under discussion between that organisation and the rest of the Airbus team, with the UK Government, which will have to put up much of the launching investment, closely involved:

The discussions, involving French, West German, Spanish and Dutch companies (and their governments) are complex, but it seems likely that they will be resolved around the end of this year. In the meantime, despite a lack of enthusiasm on the part of the airlines for any new ventures in the current economic climate, design work on the A-320 is being pushed

Airbus Industrie realises that it cannot afford to allow the momentum it has built upon this programme to drop, especially with U.S. rivals such as Boeing and McDonnell Douglas waiting with programmes of their own to launch as soon as they judge the market climate

to be right.
The UK is also especially prominent in the small "commuter" or "feeder" aircraft market. Apart from the BAe Jetstream 31, the UK has won a substantial niche in this market with the Short Brothers 330 twin-engined airliner, of which 111 have been sold to 34 airlines in 14 countries (of which over 85 have been delivered, including over 50 to the U.S.).

Since entering service in 1976, the 30-seat 330 has car ried nearly 8m passengers, and flown over 325,000 hours. New versions of the aircraft on offer include the "Statesman" for business and executive travel, and a military utility transport model.

The bigger, 36-seat 360 is intended to be complementary to the 330, and it seems likely that it will also generate substantial sales in the years ahead.

Also busy in the small, light transport aircraft market is Pilatus Britten-Norman, of the Isle of Wight, builder of the Islander twin-engined and Trislander three-engined aircraft which have enjoyed substantial success over recent years, with the company (now owned by Pilatus of Switzerland), having now sold well over 1,000 air-

Michael Donne



The Anglo-West German-Italian Tornado multi-role combat aircraft (above) is now in full production for the three countries, with an ultimate total of 809 aircraft envisaged

## Greater emphasis on self-reliance

LIKE PTS counterparts in Western Europe, the West German aerospace industry is passing through a difficult period, with budgetary constraints affecting the level of government support, obliging the industry to place more reliance on its own resources especially for the funding of

Herr Martin Gruner, the state secretary responsible for the co-ordination of government aerospace policy, has made it clear that gaps caused by defence spending cuts are

new ventures.

not likely to be filled by government cash. As a result, the industry is turning its mind to ventures that it can support substantially by itself, although some government financial support will still be necessary.

The problems facing the industry are highlighted by the fact that Messerschmitt-Bolkow-Blohm, which last Bolkow-Blohm, which last year absorbed Vereinigte Flugtechnische Werke, is expected to shed about 4,500 workers by 1986, out of its expanded total after the

Airbus, to meet fleet renewal ference for the U.S. F-16—much needs and to compete with to the annoyance of French Boeing in this potentially huge officials.

France continued from previous page

The in-service date of 1986 which the company originally had in mind now has to be reconsidered. But progress has engine. been made on putting together a new consortium, with a which had consolidated 1981 memorandum of understanding sales of FFr 6.4bu, still relies which would bring in De Havilland of Canada as the first non-

European Airbus partner. For Dassault-Breguet, which had a less impressive profit record last year despite a 16 per cent increase in sales to FFr 12.50n, a lot depends on the success of the new Mirage 2000, the latest in the line.

slack last year when military sales were slow, but this year grame. the civil side of the business is expected to do less well.

The 2000, a multi-role deltadisappointment in Aus- shoulders. was repeated this month hen Belgium expressed its pre-

The manufacturer is to put more muscle into the aircraft by fitting it with a more powerful version of the Snecma M53

The state-sector Snecma, on military orders for more than three-quarters of its engine sales, even though its civil orders-boosted through its joint venture with General Electric of the U.S., CFM International—practically doubled last year.

Overall, the industry's exports The company's Falcon busi- are almost two-thirds military, ness jets helped to take up the and it relies heavily on France's own defence spending pro-

After the Socialists came to power there was talk of correcting the balance and keeping the wing fighter due to be pro- military side at 50 per cent, duced in single-seater and two- through new passenger aircraft seater versions, is to be ready projects and development of for delivery from next year, space activities. But, asked Two important export deals whether such an aim was ever already been clinched, serious, Government industrial Egypt and India, but an strategists now shrug their

David White

merger of about 40,000, which at a time of peak post-war unemployment in Germany will be neither palatable nor

Among the ventures which the industry would like to embark upon is the next ver-sion of the European Airbus, the A-320 150-seater, in which the industry is looking for a share of about 20 per cent. As with other partners, however, the eventual division of work and cost-sharing will depend partly upon how many participants are involved and

### **WEST GERMANY**

partly on how much cash the Government will be prepared to inject into the venture. According to Mr Bernard

Lathlere, president of Airbus Industrie, the A-320 is already "over - subscribed." with enough potential participants to build at least 130 per cent of the aircraft, and it is likely that the West German industry will not get all that it would like to have. The Government's view is that while it favours continued support for the Airbus, the industry must earn that support by becoming more costeffective in its activities. Moreover, the Government is anxious to see firm launch customers for the A-320 as a condition of sanctioning any additional support—a view that is close to that held by

the UK Government. Another new venture still under consideration is the next generation European Tactical Combat Aircraft. It is now clear that, at a time when the Tornado production line in West Germany has been slowed from 60 to 42 aircraft a year because of budgetary problems, the Government has few, if any, funds to spare for the development of an

indigenous German combat aircraft, based on the original but now dormant TKF-90 con-

cept.
This has resulted in a renewed effort to achieve international collaboration, and this summer there have been discussions on an industry level with the UK and Italy, to try to find ways of proceeding on a joint basis with at least the initial development of a European Combat Aircraft, based on the UK's P-110 design, if necessary with industry eash. Whether this comes to fruition remains to be seen

Another major military programme hanging fire is the PAH-2 anti-tank helicopter, a Franco-German (MBB-Aero-spatiale) venture which it is anned should enter service in the late 1980s. But a procurement decision is still awaited from the German Army, (which wants over 200 aircraft), and in the meantime, there is considerable competition from U.S. helicopter manufacturers, especially Bell, which is offering its Model 249.

Other ideas for the longerterm development of a new transport helicopter, the TH-3, have been proposed, with suggestions that this might form the nucleus of eventual European-wide hellcopter consortium be-tween the West Germans, French, British and Italian manufacturers. This appears to have been pre-empted to some extent by the UK and Italian decision to go ahead with the EH-101 Sea King replacement, with the parallel development of a commercial variant, so that unless West Germany were to join that consortium (the French show little inclination to do so), the likelihood of any pan-European helicopter manufacturing group seems remote.

M. D.

# Military programme cushions Gerospatiale Military programme cushions

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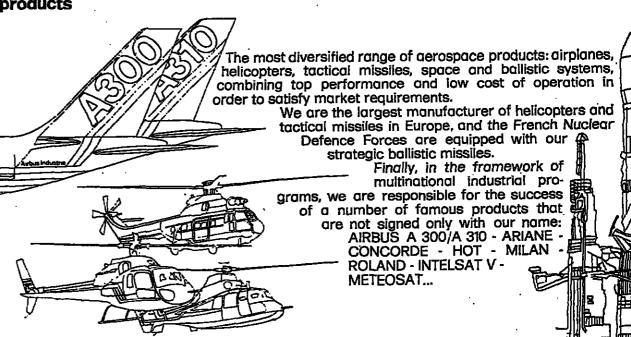
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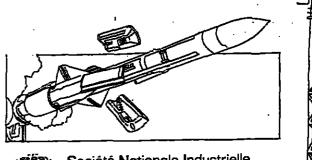
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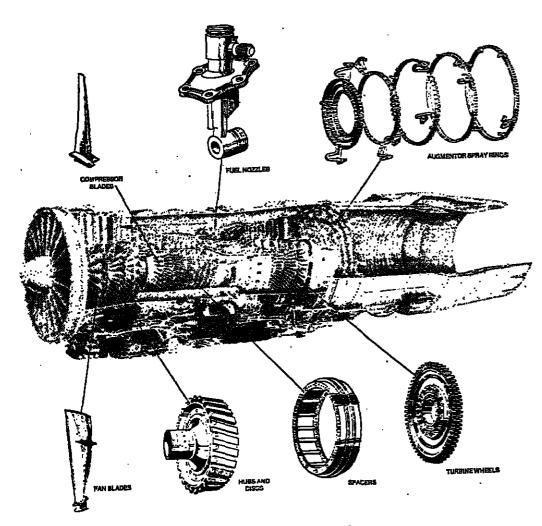
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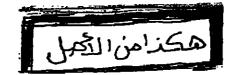
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# Hobbled by financial restraints

FINANCIAL constraints have brought the Dutch aerospace industry very much down to earth this year. Less than 12 months ago, Fokker had seemed on the verge of re-emerging as a leading power in world aviation. Toprofitably and comfortably, its ambitions have been curbed and rather than the great leap forward.

What caused the change was, of course, the abrupt dissolu-tion of Fokker's links with Mc-Donnell Douglas of the U.S., which was to have resulted in joint production of the MDF-100, a new 150-seat, short-to-

medium-haul airliner. The break-up hurt. Now, while cast-ing around for new partners, the company—which likes to project itself as " aircraft maker to the world "—is seeking. basically, to improve its existing product range. A respectable rear's profit is expected, to add to last year's figure of FI 10.8m, but thoughts of an early bonanza have vanished. In 1982, sales of the highly successful F-27 and F-28 aurliners are still what count, together with valuable spares and assembly of American - designed F-16 American - designed

Elsewhere. Hollandsche Sig-naalapparaten of Hengelo, con-tinues to engage in the European space-race through its involvement in the Eros satellite programme, and a growing number of small engineering companies have joined the Netherlands Aerospace Group. consortium which competes actively for business in the subcontracting market.

Fokker, though, remains the Without this once-great manufacturer. Holland would be an aviation also-ran in the same league as Denmark or Belgium; with it the country can claim tradition and achievement and an industry still employing more than 12,000 workers.

It was in February of this MDF-100 had been seen as a ness but the economic recession forced cancellation of the pro-

once, horizons were lowered. For Fokker, it was a humiliday, while it is ticking over ation as well as a commercial setback. Since then, however, the company has bounced back the talk is of consolidation and has recovered its nerve. The easy option would have been to look for an immediate, alternative to the MDF-100. Fokker,

### NETHERLANDS

though, has been cautious and has studied the sometimes competing claims of Boeing and Airbus Industrie through the eyes of experience. Management is determined not to be rushed. Top executives and design teams are examining the possibilities and saying nothing, and in the meantime they are pressing ahead with a development programme on the F-27 and F-28 for which many manufacturers round the world would be deeply grateful.

But while Fokker takes stock, it appears increasingly likely that it will finally come down in favour of joining the Airbus A-320 consortium. For one thing, it is European, and the Dutch are 100 per cent Euro-peans. For another, they would be working with companies more or less Fokker's own size and could hope, with luck and perseverance, to emerge from talks now going on with a level of participation in the new medium-haul Airbus of as much

as 15 or 20 per cent.

It has even been said that, clear number one in its field. by pulling out of the McDon-Without this once-great manu- nell Douglas venture. Fokker was unwittingly rescuing itself from the consequences of its own folly. Development costs of the MDF-100 would undoubtedly have soared far higher than the aircraft itself, and Fokker could easily have been left with 50 per cent of a mounting catastrophe. rear that Fokker learned that With Airbus, the potential may its dream of a "world" airbus smaller—shares in the continer had been shattered. The sortium being already over-subscribed-but the safety margin stepping stone back to great- and the scale of operations are each pitched more at Fokker's

In the meantime, Mr Swart-

# Missing flypast tells story

RELGIUM'S national day on gramme is at present firmly in July 21 neatly summed up the the hands of the Belairbus declining fortunes of aviation in the country. For the first time in many years the pomp Flag's demands have protral Brussels was not crowned by a fly-past overhead.

By some estimates Belgium's air force pilots are currently flying only 36 training hours a year as against the Nato level pledged of 240 hours. Although that perilously poor perfor-mance is a result of public spending cuts, it also reflects all too accurately the state of the aircraft industry.
Ironically, it has been Bel-

gium's part in the construction of these virtually grounded military aircraft that has kept its handful of aircraft specialists in business since the World War II. The mounting cost of aviation fuel and the stringent budgetary disciplines being imposed by the Belgian Government to reduce the runaway state deficit are certainly reducing the operational effectiveness of the air force, yet it s Belgium's participation in the F-16 combat aircraft fighter that enerantees the survival for the present of the country's three leading aviation concerns.

The two major airframe constructors, SABCA and Sonaca. rely for more than half their turnover on sub-contracts resulting from Relainm's share in the

### BELGIUM

building of the U.S. General Dynamics fighter selected in 1975 by a number of European rountries in what was known as 'the sale of the century" as the new generation Nato fighter. In Belgium the F-16 replaces the ageing Lockheed F-104G Starichter and the aircraft engines division of Fabrique Nationale Herstal depends to the tune of 75 per cent of activity on its part in the building of the aircraft's FR-100 Pratt and Whit- being worked out by ney engines.

their 7.000 or so key technical jobs, are grouped in the French-speaking southern Wallonia region of Belgium has of late roused fierce resentment in Dutch-speaking Flanders. Some 90 small and medium-sized Flemish engineering concerns have rallied behind such larger groups at Bekaert to form the controversial "Flag" consortium that is demanding a major stake in future aviation contracts.

Flag-for Flemish Aerospace Group-is attempting to break Wallonia's longstanding dominance of the aircraft sector by insisting that in future it should only on the F-16 but also on the A-310 Airbus, even though Belgum's helated involvement in the Airbus Industrie pro-

military march-pasts in cen-ol Brussels was not crowned in Wallonia, where the aircraft industry, small as it is, is seen as one of the few high technology rays of hope in an economically battered region that is otherwise grappling with the decline of steel and heavy engineering. Flag's disruptive effects, for it undoubtedly has political clout out of proportion to its technical expertise and experience, are likely to be compounded by the present state of the Belgian industry.

Since World War II the sector has slid from being an industry in its own right, with a strong innovative lead in light and training aircraft, to the status of client industry with little other function than to produce the domestic content of foreign aircraft bought by Belgium's air force or the State-owned airline Sabena. At the same time major foreign interests have bought in, so that the leading SABCA company, founded along with Sabena in 1923 as a cornerstone of Belgian aviation, is now 50 per cent owned by France's

Dassault-Breguet. That particular relationship has of late greatly complicated the reaching of a decision inside the Belgian Government on a successor to the air force's French-built Mirage V tactical strike aircraft. The choice appears to have settled on the F-16 once again—which will ensure that the local contracts on those ordered to replace the Lockheed F104G do not run out in 1984—at the expense of the new-generation Mirages that had been urged Dassault-Brequet along with the Dassault-Dornier Franco-German Alpha-Jet already in limited use in Belgium for advanced training.

The details of the F-16 "second wave" orders are still Belgian Government, with the The fact that these three object of securing both attracmain aviation companies with tive financial terms for what could be up to 100 fighter aircraft and a substantial share of their construction. A sizeable proportion of that work seems destined to be placed with the burgeoning Flemish aerospace industry, thus raising fresh doubts as to the longer term future of the Walloon sector. For even with its present lion's share of F-16 contracts and works on the Airbus, Wallonia is finding itself forced to give heavy subsidies to the aircraft companies there. The comparatively recently established regional government has lately, much deliberation. receive 56 per cent of all the decided to subscribe some work carried out in Belgium not BFr Libn of Sonaca's start-up decided to subscribe some

costs for the Airbus, which could total BFr 4.8bn. Giles Merritt

chairman, said at the time that the continuing success story of even keeping the venture tick- the F-27, first developed in the ing over was too costly. Every-early 1950s and still going thing was cancelled, and at strong in 1982. Experts say that the original F-27 and current model resemble each other in concept only-both being short to medium-haul, turbo-prop air- Industrie. liners. Progress down the years has been such that an aircraft coming off the assembly line this year is as up to date as any of its "newer" rivals and probably much more reliable. The image is good, and even if sales have been forced down by the recession, work continues. Well over 500 F-27s have now been produced, and the market for spares and repairs is considerable. There is no reason why sales should not reach the 1,000-mark, providing a continuing backdrop of profit against which to set plans for

> 9,700 workers, nearly 2,500 more than in 1978. To keep this workforce busy, there is will eventually be found for all the aircraft produced. At the same time, the F-16 continues to be a money-maker. The 100th was delivered in June, and three a month of the June, and three a month of the sophisticated fighter-bomber are currently being produced. Production of Fokker-designed carbon-fibre tail sections for the F-16 starts later this year, and carbon-fibre undercarriage doors for the A-310 Airbus are already being assembled.

Today, Fokker employs some

the future.

be over. Profits could well be dented over the next few years by the continuing recession in

Mr Frans Swarttouw, Fokker touw can content himself with airliner sales. There is no reason to believe, though, that lessons have not been learned, and even the experience of working together, briefly, with McDonnell Douglas, could be put to good use with Airbus

The other branches of Holland's aerospace industry are similarly jogging along keep-ing abreast with the latest technological advances but scarcely making waves in the world market. Hollandsche Signaziapparaten, which joins Fokker with Philips, is funded by the Dutch Government and is involved in helping to produce the Eres infra-red astronomical satellite for launching later this year. The new satellite should measure cosmic radiation sources 50 times better than ground-based equipment. Hoilandsche Signaal is also involved in research on spiral groove bearings for the European Orbital Test Satellite (OTS) and is working on improving solar battery discharges undoubtedly an element of to prevent explosions in space, stockpiling at the moment. The company has supplied an Company spokesmen insist. to prevent explosions in space. however, that the risk is a calcu- and, through its French divilated one and that, if previous sion, is developing parabolic trends are repeated, customers antennae systems for the recention of satellite television pic-

Funding comes from the Netherlands Agency for Agrospace, a government-sponsored body set up in 1946 to rescue Fokker and establish Philips in a new area. The agency provides cash to help in the development phase of a new project ms was the case with the sales. Thus, while it inkes a risk, it also stands to make For Fokker, the worst may profit, as it has done, hand-e over. Profits could well be somely, from the F-27.

Walter Ellis

# Mergers bring fresh life

industry are currently undergoing as rapid and sweeping a process of change as aero-

Only a few years ago, it seemed primarily a cluster of small and medium sized commail and mention sized com-panies, all of them fiercely independent and concentrat-ing on proven, but small, niches in the overall international market. But since 1977 its turnover has

tripled, to 1.2,200bn (\$1.61bn)

in 1981 from L740hn four years earlier. From the pre-vious fragmentation, two broad groupings are emeraing, both under the aegis of the public sector. Italian aerocompanies are no involved in projects across the entire spectrum of both the civil and military sectors. Inevitably, the industry has been a key element in the process whereby Italy has emerged as the world's fifth arms manufacturer and exporter. Foreign sales, at L1.550bn, accounted for per cent of activity in 1981. But in a wider sense, innovations generated in the sector have helped maintain the country's place in the high technology, high value-added industries on which its future as a trading power will in

good measure depend. The Government, too, has been playing its part, although still not actively enough to satisfy many people within the industry. The long overdue modernisation of Italy's armed forces has helped, while aerospace will be a leading beneficiary of the L1.500bn (\$1.1bn) fund approved by Parliament earlier in 1982 to support

lechnological development. Even so, many analysis fear that bureaucratic sloth, that perennial characteristic official Italy, could still hamper the sector's progress-as

### ITALY

might sterile feuding between the two single biggest companies involved.

The largest, and cornerstone of of one of the two groupings. is Acritalia, controlled by the Finmeccanica engineering division of IRI, the Stateowned conglomerate. Under the scheme envisaged by the Ministry for State Shareholdings, Aeritalia will be responsible for medium and large aircraft and space projects. Already, it is a key subcon-

tractor for the Boeing 767 medium-range passenger aircraft, and heavily involved in the Tornado multi-role combat aircraft, or which the 809 aircraft on order will be the linchpin of the modernisation of the Italian. West German and British air forces within Nato. Jointly with France's Aerospatiale. Aeritalia is also to produce the 40- to 50-seat ATR-42 "commuter" of regional transport aircraft.

But perhaps most indicative of the new philosophy underlying the industry is the collaboration between Aeritalia and Aermacchi-the largest privately owned company-in the AM-X light attack aircraft project, in which Embraer of Brazil also participates.

SECTORS in Italian To seal the venture, the stateowned group has taken a 10 per cent equity stake in the Varese-based Macchi, hitherto the exclusive property of the Foresio family, and there are suggestions that the share might soon go up to 25 per cent.

ike its counterparts elsewhere. the Italian industry has realised that the costs of developing a new project are today greater than any single private company can shoulder. In the meantime, deliveries are

now in full swing of Macchi's MB-339 jet trainer (easily convertible into a light attack aircraft as events in the Falklands war showed to the Royal Italian and other foreign airforces, including Argentina's The second hub in the industra is Agusta, now controlled by EFIM, another publicly owned concern, which will have responsibility for both heli-copters and smaller aircraft.

On the helicopter side there are no problems: Agusta makes a wide range of machines, both under licence from Bell. Sikorsky and Boeing of the U.S. and on its own account, as well as sharing in the planned EH-101 naval helicopter project with Britain's Westland.

However, friction has deve-loped on the light aircraft side, with charges from Macchi that the later \$-211 trainer built by Siai-Marchetti. a subsidiary of Agusta, is a needless, direct competitor of the established MB-339.

This Agusta and EFIM deny, but the rivalry between them-selves and Aeritalia for supremacy in the sector is illconcealed. And wasteful dupircation is not something that Italy, where research and development spending still lags behind that of its competitor countries, can afford. But efforts are under way to secure a truce.

Already the relentless pressure for new capital has obliged the Agusta family to run down its stake in the company from 49 per cent to 20 per cent. after a capital increase in

It is now becoming clear that Count Corrado Azusta would like to dispose of the remaining interest, and some pressure is being everted on Finmeccanica to step forward as huyer.

Joint FFIM/IRI numership of Agusta would neatly symbolise a new, co-ordinated anproach by the State sector to the problems of Italian aerospace. But Finmeccanica is understandably wary about paying dearly for a minority stake, which could still prevent it from exerting real control in the running of the company.

Even so, these difficulties have thus far not fatally impeded the industry's advance. Employment rose a further 3 per cent last year to 42,000, in sharp contrast to the squeeze on jobs in most of the rest of Italian manufacturing industry. Investments in 1981 doubled from 12 months earlier to L370bn (271m). and the medium and longer term outlook for the aerospace secor remains, distinctly healthy.

Rupert Cornwell

# Boost from new military contract

SWEDEN'S aerospace industry is basking in a far more buoyant climate these days. After three years of doubts about its future and with its very survival at siake the industry has recovered its self-confidence; new staff are being recruited and a sense of purpose has returned to the design rooms and workshops.

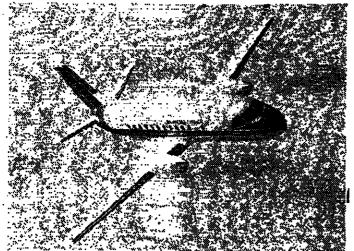
The most important single factor for this change of mood was the signing on June 30 last of the contract under which the all-Swedish industrial group led by Saab-Scania will build a new multi-role combat aircraft for the Swedish Air Force. Other bullish features are the speed at which Saab's joint airliner project with Fairchild of the U.S. is going shead and the extension of the missile programme.

The order for the new bat aircraft, code-named JAS, covers development and production of an initial batch of 30 aircraft. The contract is valued at about SKr 10bn (£940m), with about two-thirds of the work being carried out by Saab-Scania. The rest is divided among Volvo Flyg-motor, the Ericsson Telecommunications group which will be responsible for the pulse doppler radar equipment, SRA Communications and FFV. the state-owned defence equip-

The full JAS programme approved by the Riksdag (Parliament) calls for the delivery to the Air Force of 140 aircraft with weaponry and other equipment by the year 2000 at a cost of SKr 25.7bn in 1981 prices. By choosing the JAS and dis-

carding competing offers from American manufacturers, the Swedish Government and Parliament are estimated to have saved 6,000 of the 13,000 jobs within the Swedish aerospace industry. In particular Saab-Scania's capacity to design its own aircraft has been preserved. The decision to go ahead with

the JAS was pushed through Parliament by the non-Socialist. parties against the opposition of the Social Democrats who are well placed to win the general election in September and return to power. The Social Democrats did not object to the order going to the Swedish group but Saab Viggen, the aircraft used by Argentina in the Falk-they wanted to postpone the decurrently serving with the Air lands conflict. The only major



The Saab-Fairchild 340 commuter airliner, now in production, is a joint venture by Saab-Scania of Sweden and Fairchild Industries of the U.S.

increases the risks carried by

one version will perform inter-

cept attack and reconnaissance missions. Like its predecessors,

the Viggen and the Draken, it

is designed to fit the special

which calls for planes able to

operate from ordinary roads

and under a simple turnaround

service handled mainly by

At a take-off weight of around

eight tonnes the JAS will be

roughly half the weight of the

Viggen but will possess a weapons-carrying capability of

On the same day that the

JAS contract was formally com-

pleted the Swedish Defence Pro-

curement Board also placed a

SKr 500m order with the Saab

Bofors Missile Corporation,

pany, for an Air Force version

of the RBS 15 missile currently

under development for the

value of the contracts so far reached for the RBS 15. It is

This brings to SKr 1.1bn the

order as .its

Saab-Scania emphasises that

the contractors.

conscripts.

predecessor.

Swedish Navy.

cision for another year to allow Force, the contract significantly time for further assessment of the economic and technical contents of the package offered. The the JAS will be the first true multi-role aircraft, of which

The Social Democrats' attitude has been influenced the doubts expressed by the Army commander General Nils Skold whether the JAS design has the development potential to remain competitive through its estimated lifetime. which will extend well into the

next century.

The Air Force does not share the Army chief's reservations and the Social Democrats are not expected to cancel the JAS order if they are voted back

### SWEDEN

into office in September. The contract signed in June provides for substantial penalty payments to the contracting group in the event of a cancellation.

It also includes penalties payable by the contractors if they fail to meet the specifications, which cover not only the aircraft's performance but also the cost of operating and maintaining it. Aiming at avoiding the cost overruns experienced a sea-skimming anti-ship weapon in developing and building the similar to the French Exocet, production

foreign component in the missile will be the let engine, which will be bought from France's Micro Turbo.

The RBS 15 will have a longer range than Exocet. According to reports in the Swedish Press its target-seeking equipment will be less vulnerable to interference than that of Exocet. and will have a ground-hugging capacity, enabling it to be used within the island belts around the

Samb-Scania's target is to reduce its dependence Swedish military contracts and to reach a balance between military and civil work by the end of this decade. The principal component in this strategy on the civil side is the 34 seat airliner the SF340, which it is building together with Fairchild Industries of the

So far development of this aircraft is on schedule. On August 3 at Saab's Linkoping plant, the wings, built by Fairched in the U.S., were mated with the fuselage of the first aircraft, which is scheduled to roll out late in October next. The first flight will take place early in 1983 and the first deliveries are planned to reach Swedish air defence profile customers in the first quarter

Saab-Scania and Fairchild report 111 firm orders and paid options for the SF 340, which is aimed at the growing shorthaul regional airline market. They estimate that the project will break even with the sale of around 200 aircraft at a price of roughly \$4.75m each in 1981 prices but they believe they have a good chance of capturing a considerably larger share of the market which could altogether amount to as much as

2,000 aircraft by the mid-1990s. One sales point underlined at Linkoping is that by virtue of owned jointly by Saab-Scania its transatiantic parentage the and the Bofors armaments com- Saab-Fairchild SF 340 will be the first airliner designed to meet both the highest U.S. civil aviation standards and the new joint European aviation regula tions. But one of its biggest advantages in fighting for its market share may be the speed with which it is being brought into

William Dullforce

# The complete communications technology company

THOMSON-CSF, the French-based electronics company with a turnover of \$ 4.36 billion 1981 generated by 82,500 employees, is tackling the revolution in communi-

cations technology on every front. The company, with 48% of its sales outside France, is continuing to consolidate its reputation as a global leader, in every industrial and government electronics. These include avionics, air-traffic control systems, medical operations and telecommunications. THOMSON-CSF's telecommunications activities account for 38% of the company's revenue and include transmission, switching, data processing

and key main components. Consequently, it is one of the world's few companies to possess the wide range of expertise essential to the development of major communications sys-

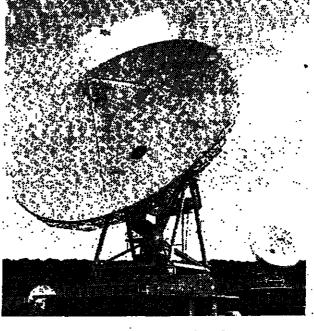
tems carrying voice, image, data and telex traffic over radio, microwave, conventional and optical-fiber cable and satellite links. In the area of satellite communications, in par-

> ticular, THOMSON-CSF designs and builds integrated telecommunications systems and their component parts including satellite payloads, earth stations, a wide range of equipment, tubes, dataprocessing systems and control systems.

THOMSON-CSF performs project design work, including site surveys, technical, financial and administrative studies and related tasks.

The .company also designs and builds tumkey systems and

trains the necessary operating personnel. Lastly, it is active in technology transfer and helps set up manufacturing facilities in foreign countries.



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# Two countries become partners...

industry continues to centre Hercules. moustry continues to centre round the success of the C-212 Work is now at an advanced Aviocar or "the jeep with wings" as it has become popularly known. This STOL Aviocar, the CN-235. This will aircraft (short take-off and landing) has become the standard. ing) has become the standard-bearer of its producer. Construction more powerful engine, the bearer of its producer. Construcciones Aeronauticas which, in turn, is the dominant the Aviocar Garrett TPE-331.

force in the industry. According to Casa a total of 330 C-212 aircraft either in civilian or military versions have been ordered and 215 are currently operational. Sales last year alone totalled 65 with new markets in Australia and the Emirates with a further breakthrough in all important North American markets, where 26 were sold. Aviocar orders assure

Casa is also bidding for a major contract with India to supply 200 Stol aircraft, offering the C-212. This would be a major advance and open Casa's horizons even further.

The Aviocar can carry up to passengers or loads of 2.8 tonnes, with a wide variety of civil and military uses. The aircraft has done specially well on the military side and Casa is now stressing recent studies which have shown that peacetime use of larger military transports is well below

The argument now advanced is that it is cheaper and more aerospace companies, it has spanish Air Force—the C-101. Spanish Air Force—the C-101. Spanish Air Force—the C-101. So far, four of these two-seat trainers have been delivered

aerospace than, say, the Lockheed defined its objectives.

General Electric CT7-7 against sector.

The potential market for such an aircraft is believed to be

1,800 civilian units over the next 10 years, with a further

600 on the military side. There is going to be tough competition from at least three other international groups. Casa feels it has acquired client loyalty as a result of the C-212 and it has made an important move to secure a foothold in the Asian market.

The company has signed a joint production deal with the Indonesian National Aircraft Company, for the CN-235. The latter is already assembling the Aviocar and some 40 Spanish engineers are now working in Indonesia on the new project. Casa, founded in 1923, is 69

per cent controlled by the state holding company, INI. Although one of the smaller European

Lacking a broad technological an increasing share of Spain's defence needs in the aerospace

One of the holes left by the big companies concerns adapta-tion of technology. Here Casa -which also has as partners Northrop (13 per cent); MBB of West Germany, (11 per cent) and Avions Marcel Dassault of France. (0.6 per cent)-believes that it can play a role adapting advanced technology to less sophisticated needs.

Casa also plays an important role as sub-contractor on a number of aircraft programmes. For instance, it makes horizontal stabilisers and passengers doors for the Airbus A-300 (it is also a member of Airbus Industrie); it supplies parts for the Mirage F-1 and for the Falcon executive jet, both produced by Dassault. The company also works with Boeing on the 727 and the 757 airliners, with McDonnell Douglas on the DC-10 and Canadair on the L215 programme, in addition to producing the B0-105 helicopter with MBB.

On the national defence side, Casa has developed and pro-duced a jet trainer for the

hopes of securing export orders for the trainer, especially in Latin America.

The company has a contract with the Defence Ministry for repair and maintenance of aircraft and also does some maintenance work for the United F-4 aircraft and their engines.

The most significant aerospace deal in years, however, has been the recent decision by the Spanish Government to select the U.S. McDonnell-Douglas F/A-18 Hornet fighter for the Spanish Air Force. Up to 84 aircraft will be bought worth about \$3bn.

The deal - the details of which are now being discussed - will involve a substantial volume of industrial offset acti vity for the Spanish aerospace industry, including manufacture of components, the trans fer to Spanish industry of U.S. aeronautical technology, provision for in-service maintenance and other support for the Hornet.

The deal also includes procurement of the U.S. General Electric F-404 turbo-fan engines to power the F/A-18 aircraft. A total of about 180 engines will be provided by General Electric for the new Spanish Air Force fighter between 1985 and 1988. The first Spanish F/A-18 is to be delivered in January 1986.

Robert Graham

# . in joint "flying jeep" development

dustry revolves around the personality of the Minister for Research and Development, Dr the manufacture of a light B. J. Habibie, and on the hopes Polish aircraft for agricultural ing) commuter freighter, the CN-235, which is being produced by an Indonesian-Spanish

Dr Habibie is also the Presiand executives of Spain's CASA, Nurtanio's partner in the CN-235 project, speak of him in terms approaching reverence. A hand-picked bright-boy sent to study abroad. Dr Habibie gained a doctorate in aeronauti-Germany and joined MBB whre

he rose to become vice-president. He returned to Indonesia convinced that technological advance was the key to develop-ment and national indepen-His creation of Nurtanio, in

the wake of the 1973 oil take-off. and under the umbrella of Petramina, the state oil com-pany, was a practical expression tured in Indonesia. of his development theories. CASA executives see Dr Habibie of advanced science, develop-

INDONESIA'S aerospace in mental politics and complex nature of the Spanish company administration. After experimenting with

facture of the light, tactical BO-105 helicopter and later sought dent of Indonesia's public aero-an agreement with Aerospatiale of France for the manufacture

### INDONESIA

of the robust Puma range of engineering in West helicopters. In the fixed-wing sector, Dr Habibie's choice of a Nurtanio partner was Spain's Casa

A first Indonesian contract for eight C-212 Aviocars in 1975 was followed by four further orders of 20 aircraft each with an upgrade of Indonesian participation in each order. The current 20 units of the fourth

Casa executives attribute their relationship with Indoalmost as a renaissance figure nesia as much to the versatile.

equally at home in the worlds

of advanced science designs and advanced science designs and advanced science designs are almost as a renaissance figure

nesia as much to the versatile. with wings" as to the flexible

itself. Both Spain and Indonesia found fertile common ground in the department of intermeplaced on a new generation use, Dr Habibie narrowed diate technology and of a STOL (short take-off and land- indonesia's aerospace industry national aerospace industry. requirements down to co-opera- The first born of the marriage tion, initially with his former of interest is due in October, company MBB, for the manuduled to make its maiden flight. Essentially, the 34-38 seat. high wing, turbo prop CN-285 is the child of the Aviocar, and shares the basic characteristics of its parent It aims to be cheap both on fuel and maintenance, and is projected to be both tough, with a landing gear designed for semi-prepared airfields, and adaptable for both passengers and cargo. Its unchallenge maximum cabin diameter is a East Asia. spacious 2.7 metres, and it incorporates a wide central door

and cargo ramp. The aircraft will be powered by two CT7-7 engines and uses Messier Hispano-Bugatti land-

The CN-235 is the result of 50-50 Indonesian-Spanish shared basis project and \$80m has been sunk into its developattribute ment and the construction of its two prototypes. Commercial feasibility studies estimate a place in the complex. civil market for the aircraft of 1,800 units for the 1984-94

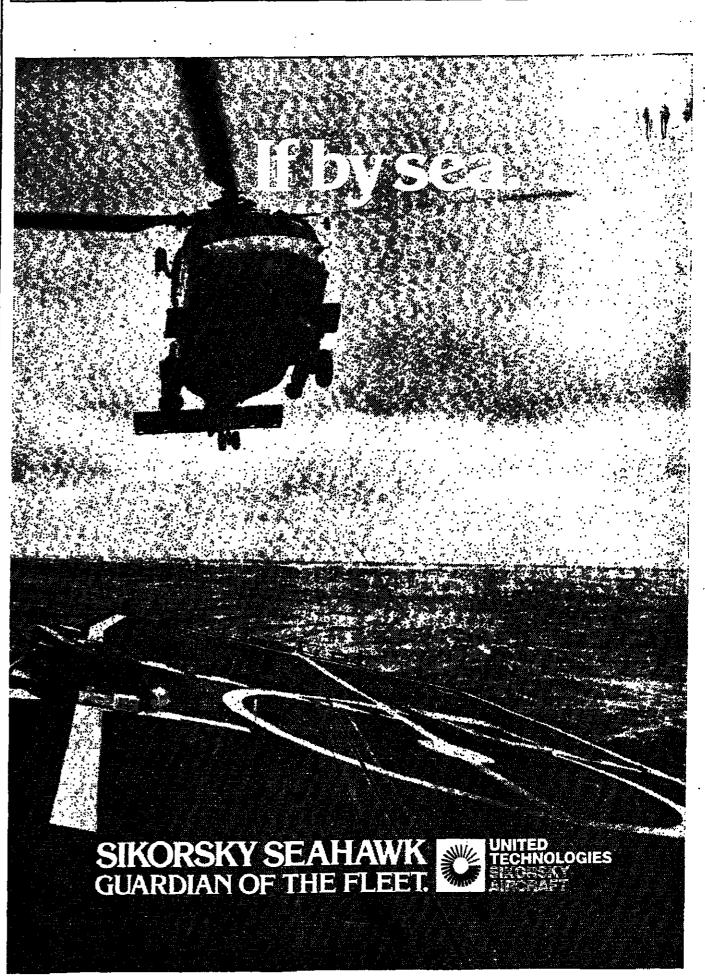
period, in addition to a further 600 adapted for military use.

Indonesia has placed orders for 54 units and Spain for 20. The test for the new aircraft inevitably depends on the American market for which the feasibility studies allocate 40-45 per cent of the estimate. The CN-235 backers believe that CASA has already achieved something of a breakthrough in America, having found five civil U.S. buyers for the Avio-

Production of the new aircraft aims to boost the present 6,000 employed in Indonesia's aerospace industry to a workforce of 10,000 by 1986 and to consolidate for Nurtanio an unchallenged position in South The conditions for such pre-

eminence are already well-established at Bandung where factories Nurtanio One and Nurtanio Two (earmarked for the CN-235) constitute what foreign associates claim is an outstanding modern conception of facilities for an aerospace industry. In keeping with Dr Habibie's background and beliefs, research and development facilities occupy pride of

Tom Burns



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Francisco M. Figueros

owns 51 per cent of the voting shares of Embraer, but the THE BRAZILIAN aerospace industry is one of the most rest is in the hands of private vigorous in the Developing World. It has already made a investors. By the end of 1981, Embraer had built well major contribution to world over 2,500 alreraft of various air transport with a range of small and medium-sized air-

with larger airports.

aircraft. The Brazilian Government ... maritime surveillance version

types.
The most successful civil aircraft built in Brazil is the Bandeirante (Pioneer), a twin turbo propeller airliner, seating up to 21 passengers, of which more than 400 have now been sold to operators world-wide, and especially to the "commuter" airlines in the U.S., where the aircraft has proved highly suitable for short-haul feeder operations and for linking local com-munities both together and

Embraer is also building a

of the aircraff, while it is also in service with various

foreign air forces. Following the Bandetrante, Embraer is now developing the larger 30-seat twin-engined

### BRAZIL

Brasilia zirliner, also simed at the commuter and feederliner market, but also highly suitable as a scall transport for a wide range of other duties.

Orders and options for the Brasilia stand at over 130 air-craft, with deliveries ex-pected to start next year. Despite the fierce competi-

tion in this market, Embraer has built a major reputation with its Bandelrante, and is heping to follow that with an even bigger success in the

Also making a successful reputation for itself in world markets is the smaller, 6 to 9passenger twin turbe-prop engined Xingu executive aircraft. An improved version, the Xingu II, is also available while the manufacturer is offering operators of earlier gramme, designed to bring their aircraft up to Xingu He standard. This aircraft will be

on show at Farnborough.

A subsidiary of Embraer,
Neiva is responsible for production of the Ipanema agricultural aircraft, and various Brazilian-built versions of Piper single-engined and twinengined light aircraft.
In the military field,

Embraer has assembled under licence the Xavante, the Brazilian version of the Italian Aermacchi MB-326GB jet trainer and ground attack aircraft for the Brazilian air force, with a number also be-

ing exported.

The company is now build-Ine company is now building its own two-seat hasic trainer for the Braillin dr. face, the EME 15 called he Theano. The first 100 means affecturer's lead, and have been handed over to the Aerospace Technical Centre in Sea Paulo, State

in Sao Paulo State. The Brazilian air force is reported to be pleased with

the performance of the aireraft, and has placed a firm order for 168 aircraft. Production tooling is building up to provide for first deliveries at the beginning of next year.

For the longer-term future, work is now under way at Embraer, jointly with Assi-talla and Aermacchi of Italy on the AM-X, a sub-soule single-seat, single-engined combat aircraft to replace the Fiat G-91 and Lockheed Fig. fighters in the Kallan ate Airte involving at least 187 siveraft. The Brazilian An action is a requirement for the Lam X type of aircraft. The first flight of this new venture is scheduled for next year.

Michael Donne

capabilities as the Exocet. China has in the past ex-

pressed an interest in the British-built Harrier jump jet

and will have been impressed by its performance in the Falk-

lands conflict. However, there has been no indication the Chinese wish to resume discus-

sions about possible purchases

Apart from the items men-tioned above, other areas of

promise for international manu-

facturers of aerospace equip-

ment include surveillance air-

craft and troop transports.
China, which has a simugaling

problem along its coast, needs

more sophisticated tracker air-craft than those presently in

service. There is no doubt that

China's Navy and Air Force would like surveillance aircraft

like the Nimrod or the Orion,

of the Harrier.

# Good opportunities for foreign manufacturers

SINCE its purchase several years ago of three Boeing 747 Special Performance Jumbo jets, China has done little further to upgrade its aged fleet passenger aircraft, many of

liners and military trainers, and is also expanding its in-

terests into the field of more

The principal manufacturer

is Embraer, based at Sao Jose

dos Campos in Sao Paulo State, and employing about

6,000 workers. Although it was

set up only in 1969, and came

into operation in 1970, it has quickly established a high

reputation with overseas cus-

tomers for civil and military

advanced combat aircraft.

which are Russian-built. manufacturer's representatives spatiale of France. in Peking, the Chinese are now Chinese officials coming to the point where they will have to again enter the market for more up-to-date aircraft to cope with increasing the BAe 146. tourist and local traffic within

However, China has given no indication in which direction it will head when it comes to

### CHINA

modernising its airline, known as the Civil Aviation Administration of China (CAAC). Boeing has been most active

in seeking to drum up aircraft sales in China and probably has the inside running if and when the Chinese decide to replace some of their ageing Sovietbuilt Ilyushins and Antonovs. China is known to

particularly interestd in Boeing's 737-200 Twin-jet which can carry about 115 passengers and is both economic and versatile. The backbone of China's international fleet are 10 Boeing 707's bought in the early 1970s.

Apart from the Boeings and the Hyushins and Antonovs, China has 30 British Tridents which it uses on its main

internal routes.

jets. China is known to be looking at various wide-bodied aircraft and is having discussions with several U.S. and European manufacturers, notably Boeing, McDonnell Douglas, According to foreign aircraft Lockheed of the U.S. and Aero-

> Chinese officials are also talking to British Aerospace about the possible purchase of a feeder-type aircraft such as

> Indication of continuing Chinese interest in what the West has to offer is the fact that a number of Chinese will attend the Farnborough Air Show in September. The officials will be from CAAC and also from Ministries responsible for China's aerospace industry.

> One factor that may persuade the Chinese to make purchasing decisions soon is that they would almost certainly win very favourable terms at present for aircraft like the Boeing 757, orders for some of which have been cancelled because of the precarious state of most airline companies in the West.

Foreign aircraft industry representatives point out that China's outdated Russian fleet is extremely expensive to maintain, and therefore it makes good economic sense to retire Figures are not readily available on the profitability of CAAC, but China's airline claims to have made a profit last year even though many of

its international flights carry

few passengers. Chinese domestic flights are thought to have a load factor of about 80 per with a fixed undercarriage, intended for a wide range of transport and other duties.

The prototype 17-passenger twin-engined Y-11T transport

aircraft, built at Harbin in China. DK Aviation of the UK

will be responsible for world-wide marketing, through a

company to be set up in conjunction with the China Trade

Centre. The Y-11T is a no-frills, five-ton, high-wing aircraft

If it is to further develop its eign aircraft manufacturers is international aviation capacity in the small short-haul aircraft China will have to upgrade its and helicopters suitable for use airfields. At present most of in China's offshore oil proits fields are not up to international standard because they are not equipped with advanced

Like China's domestic passentiation.

often cancelled if there is a Aircraft in service are versions deterioration in weather condi- of Soviet-built Mig-19s and 21s which are more or less up to 1960s.

cent and according to one for-eign businessman are "prob-ably most lucrative." Shanghai and Peking. One area of promise for-

landing aids. ger fleet, the Chinese Airforce
This means that flights are is in need of modernisation. China's four airfields from the late 1950s and early

China has attempted to build tainly have missiles with similar driven by Rolls-Royce Spey engines, but it has either cancelled for the time being or abandoned the project also-

Acquisition by China of an advanced combat aircraft would seem a long way down the track. The Chinese simply don't have the cash for such an expensive project. China's de-fence planners have been lookrence planners have been look-ing at equipment which would give the Mig-21 squadrons an all-weather capability and more advanced weapons systems. GEC - Marconi Electronics group of Britain is one of the

companies involved in discussions with the Chinese on the sions with the Chinese on the upgrading of its antiquated Airforce. British Aerospace is another British company which has had lengthy discussions with Chinese military planners about equipment supplies.

Chinese military planners about like the Winirod or the Orion, equipment supplies.

China has expressed as interest in acquiring the Sea Dart China's efforts in rocketry missile system for its Luda and satellite communication have being well publicised and are impressive. China's testing tive in Peking, discussions have reached quite an advanced stage.

The Falklands Wen which demonstrated the lethal capacity of the Exocet missile may have any of the Exocet missile may have the China's testing of an intercontinental ballistic missile life capacity to reached the lethal capacity.

stage.
The Falklands Wer which demonstrated the lethal capacity of the Exocet missie may have caused the Chinese to rethink their purchasing plans as re-gards the Sea Dart. The Sea Dart system is not as advanced as the Sea Wolf which was used quite effectively against Exocet missiles in the South Atlantic.

China's possible principal an-

tagonists, notably the Soviet Union and Vietnam, almost cer-

The more recent announce-ment that it was well advanced in the development of a three-stage rocket to launch satellites into Earth stationary orbit is a further indication of its grow-ing sophistication in this area.

Tony Walker

# Moves to overcome technology lag

like the Toyotas and the Datsuns that jam the highways, but gross sales in fiscal 1981 (ending in March 1982) reached Y327bn (\$1.3bn).

The Society of Japanese Aerospace Companies said that sales were up 15.5 per cent over the previous year. Actual production amounted to Y268bnor roughly \$1bn-while repairs alone totalled Y59bn or \$236m.

Military aircraft accounted for 80.2 per cent of the total while civilian aviation took only 10.2 per cent while another 9.5 per cent was exported.

The exports consist of Mitsubishi MU business iets fuselage parts for Boeing's new 767 commercial airliner.

Mitsubishi Heavy Industries has been producing their busi-aircraft for 15 years. So far, 711 have been sold. There are now orders for 110 of their latest model, the fanjet MU-300 better known overseas as the Diamond L

The small eircraft are manufactured by Mitsubishi in Japan and shipped to Mitsubishi Aircraft International at Dallas, Texas, where they are assembled and fitted with Pratt and Whitney engines, cockpit instru-ments and interiors for marketing mainly in the U.S. The assembly plant is in San Angelo, Texas.

Most of the Mitsubishis are sold in the U.S. Of the 110 MU-300s on order, 100 are for the American market, the remainder go to such countries as Venezuela and the UK. Of the 711 Mitsubishis produced thus far, only 70 are in Japan.

Japan has been talking with McDonnell - Douglas, Fokker, Boeing and Airbus Industrie. on the possible future develop-ment of a new 150-heat airliner. Japanese sources say that the decline in profitability of international airlines and general economic conditions have put off completion of such a project for several years.

Japan is also involved in development of a prototype engine jointly with Britain's Rolls-Royce, subsidised equally by the Japanese and British governments.

The engine is designed for use on the 150-seat jet-liner which is due for production in the second half of the 1980s. In this XJB project. Missubishi, Kawasaki and Ishikawajima-Harima Heavy Industries are developing engine fans and low-pressure turbines while Rolls-Royce works on the compressors, high-pressure turbines and other components.

A prototype engine

JAPAN HAS a moderate but tested for shipment to Britain Companies has 133 members.

The Japanese Government has, in fact, been generous

with loans in furthering aircraft development. They provinded 50 per cent, or Y395m, or \$1.58m, for the YX project and Y1,488m, or \$5.9m, for 50 per cent of the YXX 150 seat

Kawasaki Heavy Industries has orders for 130 BK-I17 twinengine helicopters developed

### JAPAN

jointly with Messerschinitt-Bolkow-Blohm of West Ger-

Imports of aircraft and parts in calendar 1981 came to Y355bn or \$1.4bn. Aircraft alone, mainly for the airlines, totalled Y214.8bn or \$859.2m. The Japanese aircraft in-

dustry consists of five fuselage manufacturers. three engine manufacturers umerous subcontractors. largest are Mitsubishi, Kawasaki. Fuji and Shin Maiwa. The

The Japanese have high exectations for the YXX project which they hope to participate as equal partners in de-sign development and sales of the aircraft, in addition to pro-

the military aircraft hudt under

licence, the electronic gear

must be imported from

However, Japan is moving

cautiously in this prefect. Back in 1977, the government formed a consortium of three Japanese aircraft companies, Mitsubishi, Kawasaki and Fuji Heavy Industries. These companies are building the body sections of the Boeing 767. Then the Japanese negotiated a 50-50 partnership with Rolls-Royce in development of an advanced aircraft engine. Now they want

a similar 50-50 arrangement on new jet airliner. Both Boeing and Airbus Industries want to build a new airliner in partnership with Japan but on their own terms. Japan wants to use the project to broaden its technological

During World War II, the Japanese had developed a jet aircraft in the final stages, How-

ever, with the surrender, the steadily growing aerospace for a series of trials.

The Japanese Government there is a technology lag. In U.S. revived the Japanese air.

It does not produce thousands of Mitsubishis and Kawasakis for the project, which must be to crowd the world's airlines repaid later.

The Japanese admit that industry was dismantled. The there is a technology lag. In U.S. revived the Japanese air. the Boeing 767 project, they craft industry in 1952 to help have been entrusted only with service American aircraft in the production of body sections. In Korean war.

The Japanese began licensing production of trainers, fighters and helicopters with the establishmen€ of the Self-Defense Force in 1954.

The only airliner that the Japanese have produced since the war has been the YS-11. The SJAMC said that 182 of the YS-11, which is a 60-seater, were produced of which half are still flying on domestic

airlines. Japan ranks fifth behind the U.S., France, United Kingdom and West Germany in aircraft production. The reason is the limited domestic market and the fact that constitutional restraints keep military expenditures down to 1 per cent of the GNP.

The Japanese must develop their own commercial aircraft production in order to keep up with the world, experts say. This is hard to realise. Aiready, Lockheed has virtually dropped out of commercial secret production. Boeing and Airbus Industrie would not like to have another competitor, particularly

John Fuili

Tokyo

### EXPANSION BY ISRAEL AIRCRAFT INDUSTRIES

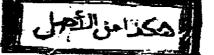


The Israeli Kfir (Lion Cub) single-seat interceptor, long-range patrol fighter and ground attack aircraft, is built in Israel itself by Israel Aircraft Industries, and has demonstrated its capabilities frequently in recent years, and especially in the recent Israeli action in Lebanon. The Kir is being followed by a new lightweight, single-seat, air defence and ground attack fighter, called the Lavi (Young Lion), with a first flight expected in 1984, and entry into service in 1986, replacing the Israeli Air Force's A.4 Skyhawks, then the F.4 Phantom jets.

and finally the Kfir itself. ineary the Kar thous.

Israel Aircraft Industries is a widely based aerospace group. It is also involved in civil aircraft (including manufacture of the Arava short take off and landing transport, the West-wind executive jet, while a new executive jet, the Astra, is under development). Other dist sions are engaged in electronics activities; engineering research, design and developm





# Exports have risen dramatically

CANADA'S aerospace industry, avionics, and CAE Industries. Space Shuttle, have been costly, swollen to about 110, or about divided about equally between is a world-class producer of both for individual companies, one-third of the way to esti-Ontario and Quebec, with a sprinkling of plants further West, has begun to feel turbu- host of firms in Montreal, try remains modestly profitable, lence from the world recession. Those parts of the industry specialising in defence work, both components and overhavi. and in avionics and electronic systems generally, and employment in the same production of the Challenger, have managed to keep up period rose from 25,000 to Further heavy backing, ha have managed to keep up period rose from 25,000 to Further heavy backing has volume and employment on the 45,000. Exports have risen been provided to de Havilland whole, while companies making dramatically. The ratio of Canada for the commuter air-engines and parts for the com-exports to total sales was 76 per craft and for engine developmercial aviation makers have cent in 1976 and 88 per cent in ment at Pratt and Whitney. felt a sharp down-draught.

The Canadian aerospace industry comprises about 125 companies which make aircraft. engines, airframe components, satellites, electronics systems and components, including navi-

They are located mainly in The two largest employers are: The two largest employers are: sion, sales are expected to Canadair, of Montreal, which double again by 1986, as the makes the Challenger business iet, a water bomber for firecomponents and defence prolargest manufacturer of small for the general aviation industry. De Havilland Aircraft engines, is next aircraft.

simulators for commercial air- and

The industry had a volume of

### CANADA

gation and communication 1980, mainly due to engine and systems, flight simulators, hydraulic gear and fuel systems.

They are leased to the systems of the secondary manufacturing indus-Montreal. Toronto, Winnipeg, and Ottawa, but also in the Maritimes and Western Canada.

try with a long term favourable balance of trade. Despite the impact of the present reces-

Challenger deliveries peak. Mr John H. Simons, chairman fighting, and also airframe of the Air Industries Association of Canada, believes that ducts; and Pratt and Whitney this successful record has come Aircraft of Canada, the world's about because of the industry's determination to specialise, turboprop and turbofan engines undertake more research and development with Federal Government help, take commerof Canada, at Toronto, which cial and military aircraft makes the Twin Otter, the Dash component work, and find Seven, and is now developing world markets for the Challen-the Dash Eight, both commuter ger wide-bodied business jet and type aircraft with Pratt and the two de Havilland commuter

The successes of the past "space arm" on the American

Government financial liners and military aircraft. A resources. Generally, the indus-Toronto and elsewhere specia- but the Government, besides its guarantees outstanding for about C\$3bn in 1981, even after about \$1.2bn in Canadair debt in the resource industries. inflation twice the level of 1976, to cover development and

The two main problem areas. as a result of the recession, are Pratt and Whitney, the engine maker, and the two airframe firms, Canadair and de Havilland Canada, which are both Government-owned.

Pratt and Whitney has had general aviation industry has plummeted nearly 50 per cent in the past year.

### New orders

U.S. small aircraft manufaclurers comprise its principal market. Canadair's Challenger programme has taken much longer than expected and a second version, with more powerful engines, had to be developed to meet full market expectations for the aircraft There have been some stretchouts in deliveries because of the recession, and costs have been affected by inflation. The company has made some minor layoffs this summer, and could have to make more.

While de Havilland's order Canadian Marconi specialises decade, including the Canadian book for the twin-engined Dash Eight commuter airliner has

mated break-even, and production will start only in the fall, the four-engine Dash Seven has been a disappointment, while lise in other areas of aerospace. direct funding of research, has orders are running light for the older Twin Otter, widely used

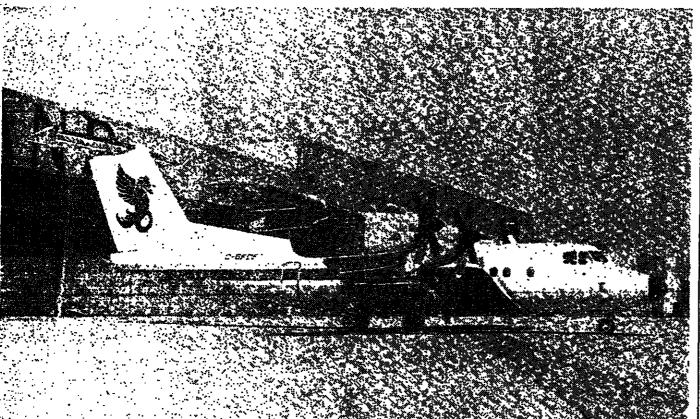
However, de Havilland Canada, with the support of the Government, has signed an understanding with Airbus Industrie of Europe to participate in development of the A-320 150-seat airliner, and to make airframe components for it, The Government would

invest about \$500m in the project, and would expect to gain at least 10 per cent of the manufacturing programme with de Havilland Canada as an associate partner. The possible to lay off around 2,000 workers entry of Canada into the A-320 as demand from the U.S. programme is now being hotly debated inside and outside the industry, and domestic politics are involved because the Government wants a new aircraft plant in Quebec.

No final decision on Canadian participation is likely for at least a year, because of the uncertainty whether enough of the world's airlines will be able to afford the required number of A-320s for the project to get off the ground.

Air Canada would be expected to become an A-320 customer, and it will have to replace its DC-9s at some stage. Another factor will be the future of Boeing's rival "7 Dash 7" project, and a comparable venture from McDonnell Douglas of the

Robert Gibbens



The four turbo-prop engined de Havilland Canada Dash Seven airliner has sold widely throughout the world both as a commuter and feeder-airliner and as a general duty transport. A feature of this aircraft is its short take-off and landing capability

# Industry 'reasonably confident'

chock-a-block with orders. On AS150m (£88m). the other hand, despite recent armed forces are moving into a of increased Australian defence their own capabilities reasonably aircraft industry so it can proabreast of international stand- vide independent support for all ards, and should ensure continu- defence aircraft. ing relatively good levels of employment for the local aero-

space industry. In general Australia con-tinues to rely on overseas sources for the design and construction of most of its larger and more complex weapons systems. At the same time, much has been done to harness local industrial resources to reduce Australian dependence on over-

tenance of this equipment. The base of the Australian aerospace industry comprises three main organisations: the Government Aircraft Factories Aircraft Corporation (CAC). which operate side-by-side at land Australia, whose main base is Bankstown, Sydney.

LIKE ITS counterparts else- than the bottom of the most re- In the main, says Hawker's ing design, development, con-where, the Australian aerospace cent work trough in 1975—and commercial director. Mr Peter struction and flight-testing of

new round of major equipment self-reliance, the Government's acquisitions which will keep aim has been to bolster the local

It is this maintenance support

### **AUSTRALIA**

role which currently provides the local industry with the greater part of its defence work. CAC currently overhauls the Snecma Atar gas turbine engine seas manufacturers for the main- for the Royal Australian Air Force's Mirages, as well as Rolls-Royce Avon and Viper turbojets. At GAF major maintenance activity is related to the Mirage, while (GAF) and the Commonwealth Hawker de Havilland handles the maintenance work on the RAAF's Caribou aircraft, the Fisherman's Rend, in Mel-Pilatus Porter for the Army. bourne, and Hawker de Havil- and Tracker, Wessex and Sea King helicopters for the Navy. In addition, Hawker has built

They currently employ just up a substantial export business under 6,000—10 per cent more on gas turbine overhauls.

business to at present hardly have annual sales exceeding Smith, defence manufacturing prototype aircraft. Following currently consists of spares and successful and prototype devel Since the Defence White modification kits, though in the budget cuts, the Australian Paper of 1976 spelt out a policy absence of significant defence manufacturing projects over the manufacture and flight-testing second half of the 1970s, the of 69 aircraft. Government's AIP Programme (Australian Industry Partici-pation) has been crucial as a potential source of manufacturing work.

For example, CAC has scored sub-contracts for engine component production from Rolls-Royce, Snecma, Pratt and Whitney, and General Electric, as well as airframe contracts from Boeing, Lockheed and McDon-nell Douglas.

Hawker, with contracts from Canberra, as well as the Bell Boeing British Aerospace, local aerospace industry, are General Electric. Lockheed. and Whitney.

Despite the current recession in the international aerospace Smith says the Australian aircraft industry is looking to the rest of the 1980s with reasonconfidence.

This is partly because of new in the last few years the Aus-

tralia will eventually assume a role as the centre for advanced aerospace technology in the Pacific and South-East Asia,

A major boost to the local industry will be its participation in the RAAF's McDonnell Douglas F-18 fighter-bomber programme. Another will be the recent contract awarded to the Australian Aircraft Consortium (a joint venture between CAC, Hawker and GAF) for design and development of a new turbo- to take up the proposal, as

In June, the Australian thing about export prospects or Minister for Defence Support, Mr Ian Viner, announced the award of a A\$36m contract to CAAC for a basic trainer, cover-

opment, further contracts are due to be awarded covering

According to Mr Viner, production of spares and support equipment is likely to take total project costs to around A\$155m, at August 1981 prices. impressively in its major The new aircraft, which is ex-speciality, jet engines, winning pected to enter service in 1988, will be the first manned aircraft since the 1950s to have been designed and built in Australia to meet military standards.

A third major project in the

offing is Australian participation in the 150-seat Airbus The main beneficiary has been Industrie A-320 airliner, though currently concerned at the con-McDonnell Douglas and Pratt tractual and commercial terms of the proposal from the consortium, which is thought to involve an investment of more and aviation industries, Mr than A860m for an Australian share of around 2 per cent.

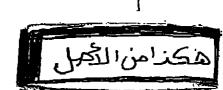
### Memorandum

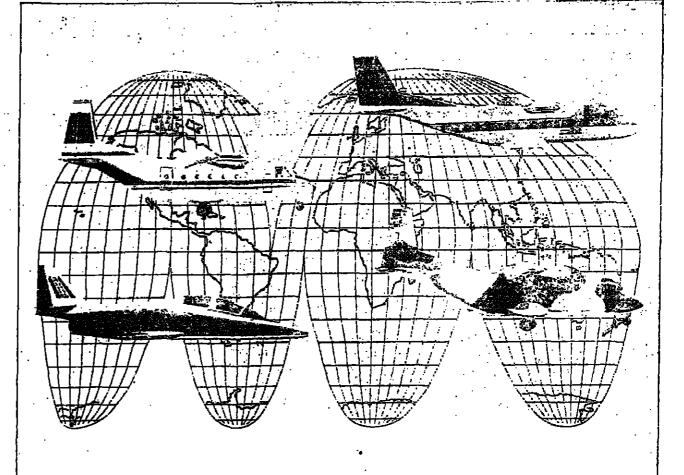
Recently, a memorandum of military aviation programmes understanding was signed by currently in a formative stage, de Havilland Canada, which as well as the recognition that could potentially see the Canadians taking a 10 per cent stake tralian industry has become in the A-320. A similar memomore competitive internation- random involving around 2 per cent, was signed by the Aus-There is also a hope that Aus- tralian aerospace industry last December, but in recent weeks a more formal offer has been

The feeling locally is that Australia cannot afford to subsidise the A-320 programme, and while the project is readily described as one of the brightest opportunities for the industry in the second half of the decade, it is felt the Australian Government will be unwilling prop basic pilot training aircraft currently phased, unless it for the RAAF.

specifically wants to do someemployment potential

Michael Thompson-Noel





# CASA SPREADS ITS WINGS AROUND

Today CASA's wings are the CASA C-212 Can Do Commuter, The CASA C-101 Straight Hossigh Trainer, The CASA C-212 Military Trainers (E. And iomorrow the CASA NURTANIOUS, 235

And tomorrow the CASA SCRIANOUT NESS next generation transport.

In the world of communer aircraft, the 1970's saw our CASI take of Kight now there are nove than 320 of these versible twin forthopopy \$101, aircraft in service in some 28 continger, Built to the stringent requirements of the U.S. IAA. part 25, the C-212 perform equally well as an airliner, as a freighter, or a combination of both.

The world of avaisant in the 1900, 1983 in fact,

will see the introduction of our new 40 passenger presented twin introprop called the UNCO. This new air transport draw (backly on the sources of the CNL), and is also built to facet FAA part 25 requirements. With its 50 000 frour airtrafte life, the UN-235 portends to be the premier ardiner/freighter/combination for operation

well may be 21st century.

In the world of military aircraft, there's the CASA C-101 jet trainer. This two seat, modern urbofan delivers the lowest life cycle cost of any

operational trainer it con start's student in baild. thely transing and take him straigh, through advanced training and into transition with all operational titut, mendeng weapons dels e The CIPI can also serve as a light ground at 20%

arteral) for close support.

Tor the world of industry transport, the C 212 has been performing a no read to today? The long for more than a decade, it should to that portion drop roducts, per annel, transport of drop cargo, evacuate wounded, or operate as a marine search

and partial ancient.

The C-212 worth, The C-101, The CN-25.
The C-212 multiarra, The eare our wings, Andribev and Closs happen.

CASA was founded in 1925, Refore developing perown initially the company my of all their deeply in advancing the state of the art and pechnology of arrefait construction No much to

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The companies to which CASA its should its special extension of a production of a strained 12 (1774) of the order of the completion of the comple

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ANIUM INTERNATIONA Titankum international Limited offers a special metals service to the airtrame, ero-engine and component

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Comprehensive stocks are also kept of



# International airlines struggle for survival

industry has been passing through the worst economic re-

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slumped in 1980, according to the annual figures compiled by ment in traffic Organisation (the aviation been mixed. technical agency of the UN). The total number of passengers and international scheduled at 748m was down 6m on the traffic showed a small rise previous year—the first-ever

fall to 728m in 1981. Many airline executives, accustomed all their working lives to coping with the problems of over-rapid expansion. were faced with a slump and all its consequent problems— economic, industrial, social and managerial.

The industry in general has coped well with the crisis. Despite all the problems, few airlines have gone out of business so far (although this may be due less to the skills of their managements than to the desire of their bankers not to lose the heavy investments already made in them).

### Reactions

Most airlines have incurred heavy losses, and many continue so. Managements' reactions have been to retrench hard, with heavy labour lay-offs. cancellations or deferments of new equipment orders, the grounding and sale (where possible) of older, less-efficient equipment, and the elimination of unprofitable routes.

It is now estimated by the International Air Transport Association that there are 150 wide-bodied and 200 narrowbodied jet airliners for sale world-wide, equivalent to about 91 per cent of the world scheduled airline fleet in 1981.

The pattern of the recession has been mixed. It has been worst in the U.S., where deregulation (with consequent fiercely increased competition) has compounded many of the economic difficulties already being experienced (contrary to opinions de-regulation itself has not been the basic those economic difficulties).

The recession has also hit Western Europe hard, but it

veloping World, although it has reduced rates of traffic growth. year's ICAO figure of 728m to is expected to be largely wiped inevitably had some effect in

The overall volume of world are travel, which through much anxiously looking ahead, to see under 2 per cent.

The overall volume of world anxiously looking ahead, to see under 2 per cent.

It has been estimated by anxiously looking ahead, to see of the 1970s showed an whether the recession is fading, average annual rate of growth as some observers believe. of about 7 per cent a year, Over recent months, there have been some signs of an improvevolumes. the International Civil Aviation although again this pattern has

In the U.S., both domestic traffic showed a small rise during the first few months of this year. In the UK, the British Airports Authority has reported a small but consistent improvement in traffic over recent months.

The problem confronting the airlines is that this is far too small a growth to be of much value, and that even this limited expansion is largely profitless the revenue yield from the increased volume of traffic is not matching rising costs. Although fuel prices have stabilised in recent months, and in some cases have come down, other costs continue to rise, while the burden of interest payments on new equipment represents a serious burden.

DURING THE past two years, has had a far less severe impact on many airlines in the Deindustry has been passing veloping World, although it has be a small recovery from last about \$70bn, but this growth

> It has been estimated by the IATA that the losses of its 117 likely to amount to \$1.87bn. after taking account of about \$1.6bn in interest charges. This some \$2.1bn, after interest of \$1.73bn\_

According to the IATA, interest rates are now taking over from fuel as the airlines' biggest single headache. While, remost others are still incurring sent significant new orders for losses (and British Airways is the generation of "advanced The gross revenues of the in-

Overall, it seems that air ternational scheduled airlines a case in point) while some. recession in the airline industry is over.

The interest rate problem is IATA that the losses of its 117 especially worrying. Mr Ray member-airlines for 1982 are Cope, finance chief of the IATA. says: "We are in a loss area that we seem unable to get out of. By 1983, all financing will loss is likely to rise in 1983 to be by borrowing. The airlines are becoming hostage to the loan market. There will be more Lakers and Braniffs by the time

One of the most significant effects of this situation is that the airlines are virtually unable markably enough, some airlines the airlines are virtually unable have reported profits in 1981-82.

they need. Those aircraft, with improved fuel efficiency, quieter engines, improved seating capacities and other benefits, could do much to help improve their overall financial situation, but they cannot afford to buy them

While a few orders are being placed with the manufacturers, the rate is substantially lower than in previous years. Moreover, most of these orders are coming from airlines in the Third World, where expansion has been less affected by the recession, and where governments are supporting the expanof their airlines as instruments of political as well

as economic policy.
Nevertheless, the manufacturers are holding on grimly in the anticipation that brighter times lie ahead. The general hope now is that there will be an end to the recession, or at least a diminution of it, by the end of 1983.

Whether this in fact occurs remains to be seen, but overall, both the airlines and the manufacturers hope that by the mid-1980s, the recession will be a thing of the past.

### Reductions

The other major difficulty for the airlines in their current economic situation is that they are not able to make the widespread reductions in fares that they know are necessary in order to stimulate traffic.

They have seen what happens to airlines who sell their product-the airline seat-at less than production cost in order to generate a share of the market, and the situation in the U.S. of fierce fares cutting is widely regarded as a recipe for disaster—although no airline seems prepared to put a stop

U.S. Outside the specially in Western Europe, there remains a widespread pressure from some governments and many consumer groups for cheaper fares, but while the airlines do respond where they can in shaving fares and offering special promotional rates, the overall trend in fares remains upwards, if only to keep pace with inflation.
It seems likely that increasingly the airlines will have to reduce, if not abolish, many of the trimmings and luxuries of

World air passenger traffic growth Revenue passenger miles, billion H.S. Box - B.S. Table 4-2 5-0

World air passenger traffic is forecast to grow to over 1.290bs revenue passenger miles by the early 1990s, with most of the growth likely to occur outside the U.S.

known in the past. Aircraft to a wide-bodied jet can signismany passengers as possible, and in some cases food service may have to be reduced in

cirlines have paid con siderable attention to the need to keep their passengers happy in a difficult economic situation, but in their present struggle for survival there is little they can really do to make their products as attractive as many of them would like.

What they can do, and are trying to do, is to improve the quality of service they offer in other directions. Overall, airline punctuality has improved in recent years although But even so, the heavy losses inevitably industrial disputes of the recent past will take over which the airlines have no control (such as last year's air traffic controllers' disputes in the UK and U.S.) affect this situation.

The overall safety record of the industry is also improving.

airline service as it has been Although even one bad accident will become more crowded, captly alter the statistics, figures there will be less leg room as issued earlier this summer airlines seek to squeeze in as showed that in 1981 there were only 355 passenger deaths compared with an average of 763 a year for each of the three preceding years, with only 12 jet airliner total losses in that year against an average of 21-22

for the three preceding years. The world scheduled airline industry is thus coping with the recession. The industry that is likely to emerge at the end of it will be slimmer and tougher, with many of the wasteful pracrices of the past eliminated. Airlines will be better geared to take advantage of any improvement in the economic

climate. But even so, the heavy losses out, and the years to wipe economic effects of the recession are likely to remain with the industry for a long time to

Michael Donne



Airlines have paid considerable attention to the need to keep passengers happy in a difficult economic situation

The Boeing 767 twin-engined airliner on the flight line at the company's Seattle, Washing, factory. The aircraft is about to enter

service with United Air Lines of the U.S.

# Why Rolls-Royce flies ahead of the competition.

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Thanks mainly to its Rolls-Royce engines, the Boeing 757 will use up to 45% less fuel per passenger than today's 727s. The 535 combines the latest engine technology with features proved in many years of airline service in Lockheed tars and Boeing 747s.

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# The factions prepare for battle Conditionality for

By Ray Dafter, Energy Editor

, THE GOVERNMENT is about to be considered at next year's with varying intensity, by the surised water reactor technology. UKs sectarian energy interests.

unclear power, angrily contested by mineworkers; used for their own business purposes by producers of oil and natural gas. and produce long faces among proponents of conservation.

You can sense that Mr Nigel Lawson, Energy Secretary, is beginning to wince. For a start. he has aiready sowed a seed of doubt about the likely accuracy -and thus usefulness-of the figures which will emerge from his department within the next few months.

"It does not help us very much to guess the unguessable." he told a recent gathering of international energy economists, meluding members of the department's own staff-the very people paid to forecast.

Mr Lawson asserts that the traditional projections of UK demand and production, beloved

### Calculations kept carefully under wraps

are less relevant in an open energy market in which fuels are treated merely as traded odities. But given the long lead times associated with major energy investment, is this hands-off approach appro-

Mr Lawson concedes that precasts can raise useful quesflons about the "coherence of More specifically, he ecrons that projections of fuel demand help to set a context for planning in the electricity to the 1973 level. They include industry. Here there is a clear need to match generating and supplied forecasts for the table supply capacity with expected

reluctance, new energy forecasts rose by some 125 per cent -

to preffer a thick stick with public inquiry into the Sizewell which it is likely to be beaten. B power station, a proposed from different directions and development incorporating for

The Energy Department cal-The latest set of energy pro- culations are being kept jections, now in the final stages securely under wraps for the of preparation, are likely to be time being. But significant saized upon by opponents of pointers are to be found elsewhere, as illustrated in the accompanying table.

> For instance, the International Energy Agency has recently published UK projections, prepared in Whitehall last year, which suggests that overall energy demand could rise by over 25 per cent over the next nine years. On this basis all of the energy producers —the oil, coal, natural gas and nuclear power industries would be kept happy as there would be scope for each of them to boost output. It would be to hemoan what it might view unnecessary rise in demand.

But in line with Mr Lawson's professed view—that such forecasts should carry "Government health warnings "—the line forecasts should carry be demonstrated by demonstrate a new type of projections appear far too high in the current economic light. The mid-range figures, shown in the table, were based on unof some previous governments, justified optimism about an early end to the economic recession. They were predicated on a GDP growth rate of 2.6 per cent annually in the 1980-85 period and 2.5 per cent a year commates, in 1985-90.

> As the Confederation of British Industry is at pains to point out, the recession is not over yet. Because of this UK energy consumption has continued to fall, to the equivalent of 41.4m onnes of oil in the April-June quarter, some 2.6 per cent below demand in the corresponding period last year. plies. Demand in 1981 was 3:5 per To cent below that of 1980 and, perhaps more surprising, over 10 per cent below consumption

There are some within the energy industry who believe it could be another eight years or so before demand is restored above. For the oil industry, this is a painful projection because This is why Mr Lawson is pre- its ambitious refinery expansion pared to publish, with some of the 1960s-when throughput



NIGEL LAWSON

was based on the assumption of a continuing growth in demand for products throughout the 1970s and 1980s. Hence the present bout of refinery closures among petrol retailers.

the Government, could stir up most controversy, for the CEGB is at the heart of the debates concerning coal and 'nuclear demand.

In its statement of case to the Sizewell B inquiry the board carefully hedges its bets and provides a wide range of

However, the CEGB's central, or most likely. view provides the most telling estimates. Based on an annual GDP growth rate of 1 per cent over the next two decades, the board's projection of fuel demand is not quite as bleak as that of the oil corporation, but it shows there is little scope for a growth in sup-

To complicate matters, the estimates in the statement of case exclude fuel which is notfor energy purposes, such as oil bunkers and gas and oil for chemical manufacturing. the estimates are reworked, as in the table to take account of non-energy uses they show that total demand could grow by 17 per cent between 1981 and 1990 and by a mere 21 per cent over the 1981-2000 period as a whole.

There can be little doubt that the figures will be seized upon the opponents of nuclear

1981 (actual) 1990 (forecasts)

TOTAL UK PRIMARY ENERGY DEMAND

Dept. of Energy† Major oil company 207.0 Ray/Robinson‡ DRI Europe§ à.28 à.08 2000 (forecasts) or oil compa 78.5 79.5 79.2 DRI Europe§ CEGB (central view)

\* Converted at 1m tonnes of coal squivalent = 0.6m tonnes of oil squivalent: † From International Energy Agency report "Energy Policies and Programmes of IEA Countries = 1981 Review": April 1982. (Figures are mid-points of ranges submitted by the Department.); \$ George Ray and Colin Robinson. "European Energy Prospects to 1990. Stanland Hall, London N1 8AF, Feb 1982, E85; \$ DRI Europe, London SW1H SHP. "European Energy Forecast Report." May 1982. (Figures taken from base forecast.)

power who will contend that the PWR station is not needed. or at least not needed yet. The CEGB will counter that irrespective of energy projections, the cut-throat competition PWR will be a sound invest-

ment.

demonstrate a new type of power plant in the UK, one which could form the basis of a nuclear building programme in the 1990s and beyond. Secondly, it will argue that there will be a cost benefit with the PWR because it is expected to generate electricity cheaply than a coal fired station or a gas cooled nuclear

The way in which the two sides of the debate are now limbering up indicates that it will be a lively public inquiry, in which little quarter will be given. The coal industry cannot escape being caught up in the controversy, given that its future is so closely linked to the CEGB's generating needs.

The National Coal Board and the National Union of Mineworkers can take little comfort from the most recent estimates of UK energy demand. The industry's hopes in the 1970s that coal mining was set for an early renaissance are now rapidly evaporating.

In 1974—in the aftermath of the first major oil shock—the Government, unions and Coal Board drew up the "Plan for

was revised under the heading "Coal for the Future" on the basis that demand at the end of the century would be between 135 and 200m tonnes.

Today's more sober view of likely economic growth and energy demand means the Coal Board is becoming resigned to made on paper using mathe-playing a less prominent role, matical models." It is aware of the CEGB's forecasts which show that UK demand for coal is unlikely to reach the 1979 level of consumption—129.4m tonnes (or the equivalent of 76.1m tonnes of oil)-before at least the turn of the century.

Such estimates must add urgency to the Coal Board's plan for shutting down old, uneconomic pits and replacing with modern, more cost-effective mines. However much the NUM may find customers for the combined output from old pits and new mines, like those in the Vale of Belvoir and Selby. Yorkshire. If the board continues along its present path of depressed sales and high stocks it may not be many years before its losses (£428m before deficit grant in the last financial year) reach

The fuel projections about to emerge from the Energy Department may be used by ministers and Coal Board officials to support their desire for a more rapid pit-closure programme.

But the forecasts will have wider significance. Oil com-panies will point out that if they Coal" programme aimed at a panies will point out that if they total output of 135m tonnes by are to meet UK demand for oil total output of 135m tonnes by are to meet UK demand for oil dangerous to take 1985. Three years later the plan products—expected to be around decisions in a vacuum."

1990s from domestic sources then they will have to exploit a large number of new North Sea fields. They will argue that as these fields will be small the Government will need to relax its present oil taxation arrange-

gas over the next couple of decades and will stress that this need will only be met from domestic sources if they are given incentives to exploit new fields—a willingness on the part of British Gas Corporation to pay much higher prices for sup-

and to some extent the conser-

It would be foolbardy to venture into unknown territory energy investors—pointed out. Shell has developed its own

"You need an understanding of the future shape of energy needs and for that understanding you need a range of forecasts," said a senior Shell executive. "It is major

principle is undoubtedly a

The Energy Department is unmoved. "Why get hot under the collar about something that may or may not happen in 20 years time?" said one official.

"The Government has no hot line to the future," he told the Energy Select Committee of MPs last month. "It is, in my believe that markets can be

This misses the point of concern within the energy industry. The fuel providers.

### Dangerous to take major decisions

system of forecasting.

70m-85m tonnes annually in the

Similarly, the oil companies will point to the projected increase in demand for natural

Mr Lawson is also adamant. view, a fundamental error to

launched in 1974.

аполя However, a lender of last

# in a vacuum'

vation industry, are tied into projects involving long lead times and vast capital expendi-It can take up to a decade to plan, build and commission a major project.

without some map, however frayed and dated, as Shell UK one of the leading British

London property life boat was they do. evidently international: we'll help, but only if it hurts. The

sound one. The central banks are bitterly aware that their attempts to

restore confidence after the Herstatt collapse with the Basle too successful. Investors, and also a dangerous majority of bank directors seem to have lender of last resort stood behind their international operations, nothing could go

resort is not a fairy godmother. Open market operations can keep markets liquid and funds available at a price, but they cannot turn bad debts into good

Penn Square showed that out-right folly will get the blind eye treatment. Mexico is a firm declaration that in a more governor of the Bank of deserving case, any lifeboat will England, and Dr. Lewis Leave the slipe only if leave the slips only if it is Switzerland have pointed out: adequately manned by commer- There is now a danger that comciai oarsmen.

eason for this: neither the International Monetary Fund nor the central banks have the resources to buy in all the questionable IOUs created in perately difficult for the developrecent years, even if they ing countries. wished. However, they do not supervision.

that much less to lend to anyone else—even if they wanted to, in their chastened state. In other words, forcing banks to Keynes taught in the 1930s. To go on lending to Mexico is get things re-started in a depressible, on balance, to be son of this bind with a depressible. on balance, to be deflationary.

dilemma facing central banks: of last resort.

lenders, too

By Anthony Harris

IT WILL not be surprising if how to provide credit and tasteful silk slings become the liquidity new sartorial fashion in Wall any new inflationary excesses. Street and many lesser U.S. It also, therefore, helps to financial centres, and in some resolve another; how to get places in Europe, too. The interest rates down without ferocious official arm-twisting lighting a credit fuse. Banks which went on before the which have been through this Mexico rescue meeting has not experience will remain decidely been experienced since the cautious in any new lending

Caution is the only non-The governessy principles of catastrophic substitute for high Threadneedle Street are now interest rates in restraining

> There are two possible prob-lems, however, which could result from this effort. The first is simply statistical. As long as large loans are kept going, so long will the banks require large deposits to finance these loans and the deposits are part of the money supply.

> These statistics could set of unnecessary alarm signals among monetarists

From the point of view of depositors, of course, it makes no difference whether their money is locked up in a Mexican rescue or finance expansion or speculation; but from the point of view or growth and inflation, the difference on the lending side of the halance sheet is all the difference in the world.

There is another danger which mercial bankers will swing from There is a pressing financial reckless expansionism to overcaution.

This could lead to a general contraction of credit; already, caution is making life des-

In the long run, there is little so wish, for reasons of banking that central bankers can do about this except make speeches Discipline has its price, and hope that they have got though. Banks which are locked the mixture right. A real into difficult situations, and collapse of confidence, among forced to turn short loans into lenders still more than among indefinitely long ones, have borrowers, can lock the whole system into depression.

In such circumstances we will sion of this kind we can get no leflationary.

help from any lender of last
This resolves one obvious resort: we will need a borrower

# Letters to the Editor

### Opportunities in European Development Fund works Construction needs

From Mr B. Hord M.E.P.
Sir.—Mr King (August 12),
has, in my view, responded to
John Wyles' recent excellent article on the European Development Fund in a way that larger projects to be contemcan only be described as de-featist. His letter serves to exemplify the mood among many UK firms which ensures that over recent years only some 6 per cent of EDF works contracts have been won by the UK compared to 42 per cent

it should be appreciated that the current EDF 5 will total £3,4bn for Lome II and this represents an increase of 62 per cent over Lome I. Furthermore, Mr King and UK contractors strough perhaps bear in mind British contractors would be that participation in the fourth more successful with tender that participation in the fourth

The Inland Revenue

and punk legislation

Revenue propaganda against tax

link." August 17) has smister overtones. It emphasises the extent to which it has achieved

ascendancy over its political

(supposed) masters. Govern-ment's abhorrence of becoming

embroiled in routine adminis-

tration is understandable, but not its inability or reluctance

to control the Revenue's general

policy in managing the UK tax system, especially where the

xercise of discretion is essen-

The Delaware link is about

avoidance (not illegal evasion)

of U.S. tax What objection can

there be to a company managed

and controlled, and resident, in

the UK deducting interest paid

couraging to learn that our

clearly defined circumstances.

Some readers may find it en- avoiders).

direct

U.S.-incorporated

Inland

From Mr A. Harper Sir.—The latest

avoidance (on the

by the French.

for encouraging other funds such as the World bank and Arab money enables many more plated by Lome countries and I believe that Mr King seriously underestimates the value of EDF contracts. EDF contracts and viability studies can often be the key to much larger selffinancing schemes and the current review by the European Commission could well expand even further the catalyst nature

of EDF finance.

Mr King states that the spread of Lome countries is too great and that UK experience in the EDF is low. I feel that more

If Parliament wishes to tax

apples, it cannot tax oranges until it changes the law (which

it cannot do with restrospection

no right to heap approbrium on

those who create oranges to avoid a tax on apples, still less

to bully, threaten, abuse and warn them off. Whether there

should be a tax on oranges or

apples is a morally inert propo-sition; indeed how often is to-

day's apple tax repealed by

A recent hypocrisy is 10

divide tax avoidance into "arti-ficial" (OK) and other (not

OK). One man's tangerine, how-

tomorrow's orange tax?

full-blooded orange.

in

Professional confidence does

taxes. The Revenue insists on

votes

ing the IRS's loopholes. Others and vindictive practices to be

may be more concerned by the divulged but one general method and manner of doing so. example will do. The Revenue

Rumour has it that taxpayers' has a blank cheque for tax liti-

and their advisers were warned gation financed by readers'

exercise if not yet a virtue. rather than a test case to settle Whether or not to indulge in it all. No commercial litigant

exaction must be authorised by it is unlikely to be held so the democratic process in because each taxpayer gives in,

Tax avoidance is a legitimate taking each participant's case

and justice). The Revenue has

EDF has in fact shown a multi-plier effect of seven. The scope specialise in regions where they had actual experience and/or in types of contract work where they had a clear expertise. - Given such an approach com-

> bined with a positive and conpresent attitude. rather than the present nega-tive response to EDF works contracts, recognising the good reputation enjoyed by British majority of Lome countries are Anglophone. I do not see why such a paltry level of contracts

Brian Hord. 18 Golden Square, W1.

From Mr S. Leslie

firms and the fact that the the UK should continue to lanin this sphere of growing oppor-

when threatened with costs up to the House of Lords. Sanctimonious taxpayers who chortle about playing with fire should realise that the Revenue now regards every person who attempts to avoid tax by any method it decides to be unacceptable (eg. Delaware link) is fair game for "the treatment." including "punk" litigation.

A. E. Harper. 21, Elikam Park Gardens, SE9.

Job protection and creation From Mr A. Kennaway

Sir.-Mr Stacey (August 12) is absolutely right. Orders for ever, is another man's orange. Those who congratulate them-selves on eschewing the Delaindustry and the jobs depen-dent upon them will not come about through changes in taxes ware link may find that their covenant to a child at university or through other government activity, helpful though this not a satsuma after all, but could be if properly organised The real danger is precisely together with industry. Salvaagainst UK tax? The second that this subjective test is deduction for U.S. tax (not a operated in practice at the whim tion can only come through more firms identifying correctly double deduction for UR tax) of the Revenue which is elected what the markets of the world. consequence, by no one. It tasted blood when including our own home market, ironically, of the U.S. tax if found it could hector and system's insatiable appetite for abuse taxpayers who participarisdiction. They tax, and must paied in artificial avoidance want to buy; designing, promoting, selling and servicing those products in a thoroughly pro-fessional manner. All this work therefore give tax relief to, schemes without interference companies from politicians (there are no has to be done in depth. When protecting tax it is the rewards come, as is shown by successful firms Revenue is so assiduous in clos- not allow all these unscrupulous whether Japanese, Continental,

American or British. Until this happens, putting more money in people's pockets will simply result in spending on more imports: for many reasons the British consumer as well as industry has clear knowledge of what is the best buy-too frequently it is foreign. and, if so, in what form is a personal decision for each individual and board. Taxing involves expropriation and its is abuse of the court's process; in the court of the court's process; is abuse of the court's process; in the court of the court's process; is abuse of the court's process; in the court of the court's process; is abuse of the court's process; in the court of the court's process; is abuse of the court's process; in the court of the court's process; is abuse of the court's process; in the court of the court's process; is abuse of the court's process; in the court of th

12 Fairholme Crescent, whatever the merits of his case, Ashstead, Surrey

Sir,-There are many good reasons for using construction to blow some life into the embers of the British economy. Some of these are identified by your economics correspondent ("The pressure to help in-dustry," August 17). As he states, one of the better reasons is that the construction industry is indigenous: it is British companies and the British labour force which would bene-

But there are other factors. The construction industry has been hit harder and longer than most. As a result, unem-ployment is now the highest of any industrial sector. Furthermore, a corollary of the fact that there are virtually no "imports" of construction is that absence of British orders cannot be made up for by greater exports of materials such as crushed stone or sand

fit from any construction boost.

and gravel. There is an increasingly urgent need to modernise and replace Britain's ageing infrastructure. Even in the good times, this country devoted less Even in the good of its national income to pub lic capital investment than other developed nations. Now, in the bad times, far from trying to correct this imbalance (which one might have thought to be fundamental to any policy of increasing Britain's indus-trial competitiveness), present constraints spending |

widened the gap.

Despite the extremely modest boost in the March budget (which in fact will amount to rather less than last year's underspend in the English trunk road hudget), the short term nutlook for construction remains gloomy. As your construction industry correspondent says elsewhere, there is general pessimism in all sectors of construction. Our own members' business has certainly reflected the turnround in sentiment which suggests that the return to desirable levels of activity remains as far away as

Yet another news item on oil revenues does demonstrate that there is real scope for the Government to increase public spending without increasing borrowing or taxes. If the claim that government oil revenue next year could be £4bn higher than the Treasury forecast is even half true then there can he no real excuse not to increase public capital spending. This could be done at little risk to inflation.

Shann Leslie. British Aggregate Construction. Materials Industries. 25, Lower Belgrave St, SW1



This year marks the Golden Anniversary of Wheelock Marden and Company Limited, which was established as a publicly-listed company in Shanghai on 22nd August 1932. Our history can, of course, be traced back much further to 1857 when a partnership in the name of Wheelock & Co. was established on the Bund in Shanghai at approximately the time depicted in the above painting.

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Duran Limited is the Group's other major operating UK Company. It is engaged in real estate particularly in London where several refurbishment and development projects are being undertaken.



The Wheelock Marden Group 1982 Our Golden Anniversary Year

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Anglo-Nordic Sp Antofagasta Hidgs TI Argyli Poods Warr ta. Atlanta Res. let. Beradin Holdings Sp Hillo Holdings Sp Hillo Holdings Sp Column Milion 10p. Accieman Milion 10p.

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Pactrol Electronics 175
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26/7 3/9 251; 21 Jenks & Cattell

100pm 92pm Pactrol Electronics.......

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BASE LENDING RATES

Robert Fraser ...

■ Guinness Mahon ..... 11 9 ■ Hambros Bank ...... 11 Hargrave Secs. Ltd. ... 11 % Heritable & Gen. Trust 11 %

Hongkong & Shanghai 11

Kingsnorth Trust Ltd. 12 Knowsley & Co. Ltd. ... 11 19 Lloyds Bank ... 11 19 Mailinhail Limited ... 11 19

Edward Manson & Co. 12

Midland Bank 11
Samuel Montagu 11
Morgan Grenfell 11
National Westminsler 11

11 % 11 %

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# Newspapers

TAXABLE PROFITS of Dublinbased Independent Newspapers moved ahead from IELOIm to IELI2m in the first half of 1982. on turnover ahead by 12 per cent at IE30.03m, compared with T£26.67 m.

Earnings per 25p share of this group which publishes and prints newspapers including the Irish Independent and the Evening Herald, are given higher at 6.99p (4.14p), though the interim dividend is maintained at 4p net. Last year a total of 11p was paid from pre-tax profits of 152.15m (£3.05m)

Mr A. J. F. O'Reilly, chairman, says the increase in turnover mainly reflects increases in cover charges and advertising rates in the Irish operations. The overall outlook for the group in the second half indicates the outcome will be satisfactory against the present difficult trading conditions

Economic activity in both Ireland and abroad decreased substantially in the first half, and therefore Mr O'Reilly considers the results "reasonably salis-

Due to increased losses and poor medium-term prospects the Milton Keynes printing business was closed. The net financial effect is not yet precisely determinable, but will not have a significant effect on shareholders funds, Mr O'Reilly says.

On April 21 the group bought 42 per cent of Nutley Invest-ments, which owns the Sunday

World, for £2.63m. Profits of Independent were struck after depreciation of £802,000 (£489.000), while tax took £280,000 (£253,000). Minority interests came to £18,000 (£279,000), leaving attri-butable profits of £823,000

BANK OF AMERICA INTERNATIONAL

LEHMAN BROTHERS KUHN LOEB

Union Bank of Switzerland (Securities)

COMMERZBANK

August 25, 1982

SOCIÉTÉ GÉNÉRALE

# Independent | Exeter Bldg. reaches £391,000 midway

Exeter Building & Construction although work has had to be Group reports a rise in pre-tax fought for in fierce competition, profits for the six months to the chairman, Mr D. Stoneman, June 30, 1982 from the previous says. New housing, commercial record of £364,000 to £391,000, and industrial development proon turnover up from £12.02m to moted directly by the group £15.14m. The directors have forms an increasing part of its declared a net interim dividend per 50p share of 2.5p, against last year's adjusted 1.875p. Tax for the half year at

£31,000 (£30,000) leaves retained profits of £287,000 (£229,000). This construction industry holding and management company says that trading margins are being steadily eroded in the current adverse climate, especially in some of its traditional activities. Property development has balanced this decline.

half are reasonably good, man adds.

### Australian companies' coal deal

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**\**SPEIRRY

U.S.\$100,000,000

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The following have agreed to purchase the Notes: **BLYTH EASTMAN PAINE WEBBER** INTERNATIONAL LIMITED

CREDIT SUISSE FIRST BOSTON

The Notes, in the denomination of U.S.\$1,000 and \$10,000 issued at 100 per cent. have been admitted to the Official List by the Council of The Stock

Exchange, subject only to the issue of the Temporary Global Note. Interest is payable in arrears on September 1st, commencing on September 1st 1983. Particulars of the Notes are available in the Extel Statistical Service and may be obtained during normal business hours on any week day (Saturday and public holidays excepted) up to and including September 6th 1982 from the broker to the issue:

Cazenove & Co.,

12 Tokenhouse Yard,

London EC2R 7AN.

TWO BIG Australian coal pro- and Arco of the US. Japan's over the next three years.

tral Queensland, which has worth around A\$250m (£143m).

certainty in the world coal market, according to Sir Andrew Grimwade, chairman of Austra-lian Consolidated Industries (ACI).

ACI has a 30 per cent interest

work and the timing of accruals

The half-year turnover Heppell Shops & Interiors — the purchase of which was an-nounced in June — has not been consolidated into the group's

The board's policy is to proas balanced this decline. gressively broaden the scope of Order books for the second the group's activities, Mr Stone-

jects have announced agreements Mitsui has 10 per cent. to supply Japanese steelmakers start in April 1984, guarantees the project a good start, but the with substantial tonnages of coal The bigger of the two deals is buyers for the remaining 500,000

for the Curragh project in cen- tonnes of coking coal Curragh will produce each year. undertaken to supply a total of 4.5m tonnes of coking coal,

The duration and size of the contract reflect the current un-

in Curragh, with similar stakes and Empresa Nacional Siderur-held by R. W. Miller of Australia gica of Spain.

from these sources cannot be forecast with certainty. Mr Stoneman says these factors could be significant for the full year's results.

participants still have to find

The second agreement is for

Oaky Creek is being developed

by a joint venture in which MIM Holdings holds 79 per ceat, with

### at Ward **Holdings**

BANQUE BRUXELLES LAMBERT S.A.

MORGAN STANLEY INTERNATIONAL

SOCIÉTÉ GÊNÉRALE DE BANQUE S.A.

S. G. WARBURG & CO. LTD.

DEUTSCHE BANK

Pre-tax profits at Ward Hold ings in the six months to April 4 1982 slipped from £310,000 to £302,000, after a reduction in turnover from £6.52m to £6.3m. The deal, with deliveries set to

The board is recommending same-again net interim dividend of 1.19p per 10p share. Last year a total of 4.2p was paid out from pre-tax profits of £1.22m. Tax for the six months was

fied dates of board meetings to the Stock Exchange. Such meetings are usually held for the purpose of con-

sidering dividends. Official indications are not available as to whether the dividends are interims or finals and the sub-divisions shown below are

based mainly on last year's himetable

TODAY

Interime: Anglo American Industrial. Blagden Industries. Momec /Memory

and Electronic Components). W. N.

Finals: Mountieigh, A. J. Worthington

**FUTURE DATES** 

Glabe & Phoenix Gold Mining Aug 26

Gresham Investment Trust ... Aug 26 Murray Glendevon Inv. Trust Sept 13

Midway slip

little changed at £38,000 the Oaky Creek project, also in central Queensland, to supply a (£37,000). The board of this holding comtotal of 1.5m tonnes of coking coal over three years beginning pany with property developmen interests says that in the housing market the company is still fight ing against a harsh economic background, and there is little propect of early improvement in

small stakes in the hands of Estel Hoogovens of the Netherthe situation.

However, the company's manufacturing activity continues to expand and investment in this lands, Nuova Italsider of Italy area is continuing.

### PENDING DIVIDENDS

Dates when some of the more important company dividend statements may be expected in the next few weeks are given in the statements may be expected in the next tew weeks are given in the following table. The dates shown are those of last year's announcements except where the forthcoming board meetings findicated thus: I have been officially notified. Dividends to be declared will not necessarily be at the amounts in the column headed with not necessarily be at the amounts in the column headed. Announcement last rear."

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M. J. H. Nightingale & Co. Limited

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THE TRING HALL USM INDEX  $128.0 (\pm 0.2)$ Close of husiness 20/8/82 Tel: 01-638 1591

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Allied Irish Bank 11 %
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BCCI 11 %
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# Du Pont Overseas Capital N.V.

(Incorporated with limited liability in the Netherlands Antilles)

U.S. \$200,000,000

14% Guaranteed Notes Due 1989

and

Warrants to Purchase

The 14'5% Notes and 13', " Notes will be unconditionally guaranteed as to payment by

U.S. \$200,000,000 13 4 Guaranteed Notes Duc 1989

# E.I. du Pont de Nemours and Company

The following have agreed to subscribe for the 14% Notes and the Warrants:

MORGAN GUARANTY LTD

CREDIT SUISSE FIRST BOSTON LIMITED

Morgan Stanley International

ALGEMENE BANK NEDERLAND N.V. CRÉDIT LYONNAIS

BANQUE BRUXELLES LAMBERT S.A. DEUTSCHE BANK ARTIENGESELLSCHAFT

KLEINWORT, BENSON LIMITED

NOMURA INTERNATIONAL LIMITED J. HENRY SCHRODER WAGG & CO. LIMITED

SALOMON BROTHERS INTERNATIONAL Société Générale de Banque S.A.

SWISS BANK CORPORATION INTERNATIONAL LIMITED

Union Bank of Switzerland (Securities) Limited

Wood Gundy Limited

The 14%% Notes, issued at 100 per cent plus accrued interest (if any), in denominations of U.S. \$5,000, the Warrants issued at U.S. \$38-00, and the 13% Notes in denominations of U.S. \$1,000 issuable at 100 per cent plus accrued interest (if any), have been admitted to the Official List by the Council of The Stock Exchange subject only to the issue of temporary global Notes and the global Warrant. Interest on both Note issues is payable annually in arrears on August 25.

Particulars of the Notes and the Warrants are available in the Extel Statistical Service and may be obtained during usual business hours up to and including September 6, 1982 from:—

August 23, 1982

Cazenove & Co. 12 Tokenhouse Yard London EC2R 7AN

Morgan Guaranty Ltd 30 Throgmorton Street London EC2N 2NT

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# IBM Credit Overseas N.V. (Incorporated under the laws of the Netherlands Antilles)

U.S. \$100,000,000

13 % Notes due August 18,1987 and

Warrants to Purchase

U.S. \$100,000,000 13% Notes due August 18,1987

Both Note Issues will be Unconditionally Guaranteed by

# IBM Credit Corporation

(Incorporated under the laws of Delaware, U.S.A.)

The following have agreed to subscribe for the Notes and the Warrants:-

Morgan Guaranty Ltd CREDIT SUISSE FIRST BOSTON LIMITED

SALOMON BROTHERS INTERNATIONAL

AMRO INTERNATIONAL LIMITED BANQUE PARIBAS

COUNTY BANK LIMITED

CRÉDIT LYONNAIS

BANQUE NATIONALE DE PARIS

DEUTSCHE BANK AKTIENGESELLSCHAFT

MERRILL LYNCH INTERNATIONAL & Co.

Union Bank of Switzerland (Securities)

Swiss Bank Corporation International

The 1378% Notes issued at 99% per cent plus accrued interest, in denominations of U.S. \$5,000, the Warrants issued at U.S. \$25 and the 13% Notes in denominations of U.S. \$1,000 issuable at 100 per cent plus accrued interest (if any), have been admitted to the Official List by the Council of The Stock Exchange subject only to the issue of temporary global Notes and the global Warrant. Interest on both Note issues is payable annually in arrears on August 18. Particulars of the Notes, the Warrants and the issuer are available in the Extel Statistical Service and may be

obtained during usual business hours up to and including September 6, 1982 from:-Morgan Guaranty Ltd

August 23, 1982

Cazenove & Co. 12 Tokenhouse Yard London EC2R 7AN

30 Throgmorton Street London EC2N 2NT

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CREDITS

# Mexico granted a short but vital breathing space

MEXICO LAST week won a lems, which, from the point of view of sheer numbers, constitute the worst the Eurocredit market has ever seen.

- On Friday in New York over 100 creditor banks agreed in principle to a moratorium of all payments of principal on medium and short-term debt for a period of 90 days from the " date of maturity.

This will give a space of over three months in which Mexico can complete its agreement with the IMF on credit facilities of over \$4bn. Last week it had also secured credits of \$2bn from the U.S. and was in the final stages of talks on a \$1.5bn credit from the central banks of the industrialised world.

In addition commercial banks are to average a \$500m to \$1bn additional loan for Mexico, but meanwhile Mexico itself will continue to meet interest obliga-tions on its \$60bn public sector debt and service fully all its bond issues and other forms of non-bank debt.

All this will allow time for more talks to begin on a more permanent restructuring of the country's foreign debt, especially the massive \$17bn of short-term debt piled up over the past year. It was already clear from the speed with which banks approved Friday's moratorium that the world's monetary because of the size of the debt

a smooth solution. lems will remain a delicate and as continuing their flight into complex affair. The \$60bn of quality after the Mexican probpublic debt includes over \$3bn lems. as well as pure bank debt contracted with probably several hundred banks altogether.

Several feared that a three remains rather quiet. month moratorium may simply not prove long enough to deal with the problem completely on Mexico which is scheduled to and it may have to be extended. And meanwhile the aftermath of Mexico's problem is expected moratorium agreement. In at the very least to redouble September a further meeting the restraint on lending to the will be held with the banks to whole of Latin America that developed after the Falklands

Dotor Montageon

vital breathing space in its quickly as it was on Friday too efforts to overcome debt prob- that terms were announced for a \$500m credit to be raised jointly by Venezuela's state elec-

tric utilities Edelca and Cadafe. These provide for a maturity of eight years with four years grace and a margin of 1 per cent over Eurodollar rates. Vene-zuela is sticking to its refusal to raise money over the expen-

sive U.S. prime rate. It is not clear whether the loan will be brought to the market quickly. It is to be led by eight banks-Arab Banking, Bank of America, Bank of Tokyo, Chase, Lloyds Bank International. Mitsui. Ste Generale, and Sumitomo.

But a potential problem facing these banks in syndicating the credit is simply that available manpower in potential participant banks is now being heavily concentrated on assassing the Mexican position. There is little opportunity for decisions to be taken on other matters.

In economic terms there is scant reason for tarring Venezuela with the Mexican brush as it has very coasiderable foreign exchange assets, a tight budget policy, and an inflation rate of only about 13 per cent.

But the underlying fear of many Eurobankers is that it will again become hard to distinguish between the relative merits of individual Latin American credits because of the

mood of global restraint. Some bankers were already -to exert strong pressures on Some bankers were already the commercial banks to achieve arguing last week that margins on Eurocredits for European But on Friday commercial bororwers could start to rise as bankers were still pointing out banks concentrate on improving that tackling Mexico's debt prob- their return on assets as well

of bond issues, commercial But this will only become paper and bankers acceptances apparent later as European borrowers are still largely inactive because of the summer holidays and overall the market

This week attention thus seems likely to remain focused inform its full range of creditor banks of details concerning the

Peter Montagnon

INTERNATIONAL BONDS

# Selective tone creeps into trading at the end of a hectic week

IT WAS a busy week for the World Bank last week. The Bank found itself issuing securities in dollars, D-marks, Swiss francs and guilders as interest rates headed decidedly lower.

Over the week as a whole sixmonth Eurodollars shed two points to 111 per cent, with D-mark rates down { at 8} and Swiss franc rates also down } point at 47 per cent.

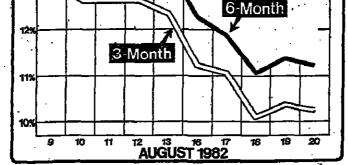
The big impetus for these declines came last Tuesday when Dr Henry Kaufman, Chief Economist at Salomon Brothers, forecast that long-term U.S. bond rates would decline to between 9 and 10 per cent over the next year. Reaction in the bond markets was immediate and Wednesday was one of the most hectic trading days ever as prices of dollar Eurobonds

Despite a mild correction on Thursday prices were still mov-ing ahead on Friday, although by then a distinctly selective tone had crept into trading in the wake of further developments on Mexico's debt prob-

soared.

On average, prices were about point higher on the day, but individual movements were very mixed as the market sought out quality paper and prices of some bonds issued by U.S. banks actually fell.

A case in point were issues by Manufacturers Hanover which stepped in briefly to support its paper in the Euromarket on Friday morning, although later in the day business



stabilised with two-way trading in the issues at a level about point below the previous

Chase Manhattan's floatingrate notes also weakened some-what, but in general dealers said such a reaction appeared over-

Mexican bonds themselves were sharply weaker on the week, particularly on the con-tinent where the latest SwFr 80m issue by Nacional Financiera fell ten points to give a closing yield of 12.17. D-Mark Mexican issues were yielding between 15 and 20 per cent by the end of the week and dollar issues were also lower where

traded. Overall the Eurodollar bond market put on about 31 points the week on average

which meant that as sometimes in the past price rises in Eurobonds were smaller than in the New York bond market.

**EURODOLLAR** 

Yields were thus falling much faster on the other side of the Atlantic which made new issues in that market more attractive borrowers. A feature of last week was a spate of foreign issues in the New York market, including the 13? per cent issue for Norwegian Export Finance. which was raised to \$150m from an original \$100m.
This week Finland is also ex-

pected to tap the New York market for \$100m of five-year bonds with an issue led by Merrill Lynch expected to yield well under 14 per cent. It would be much more ex-

market at

**CURRENT INTERNATIONAL BOND ISSUES** 

moment, and it is this thought as well as the anticipation of still lower rates to come, that is clearly holding back borrowers of fixed-rate dollar Eurobonds who issued a total of only \$500m in new paper last

The fast moving market last week almost led bankers to forget completely a problem that on Monday had seemed likely to threaten the whole nature of the business.

the ability of U.S. entities to books which they may live to loan. Traditionally, lenders issue bearer bonds in the Euro- regret. market was redrafted so that such bonds would simply have to carry a warning of the tax implications for U.S. citizens who buy them. These implications include a

provision that capital losses on such bonds are not tax deductible and capital gains must be treated as ordinary income. In addition they impose a report-ing requirement if payment of interest is made inside the U.S. Several bonds which had been held up while the legislation

was redrafted were allowed to proceed by mid-week so that by Friday the whole issue had turned out to be a storm in a teacup.

In Germany the capital markets sub-committee agreed on Monday a new issue calendar of 10 issues totalling DM 1.1bn for the coming month.

**AUSTRALIAN PROJECT FINANCE** 

# Banks may regret relaxing on risks

IT WOULD be a useful exercise for bankers involved in the that there were some differences area of who was shouldering which risks.

It is too early to judge yet, pecting that some banks were so caught up with last year's Resource risk. Most banks boom in the Australian mineral require considerably more re-Proposed new U.S. tax legis-lation that would have limited they took project risks on their necessary to repay the project

> Eighteen months ago, banks cover but the ratio has been were queuing up to lend on Australian projects. The country's political stability and less. it a very attractive credit risk for international banks.

With the presence of several aggressive project advisors, re-presenting the borrowers, and a desire by many banks to demon-strate their "commitment" to Australia in the hope that this might tip the balance when the Covernment makes up its mind on which foreign banks to allow in, the scene was set for some major advances in the banks' perception of acceptable

project risk. Financings such as Woodside Petroleum, Oaky Creek, and CSR Delhi, broke new ground in regard to the acceptance of project risks by the banks. The question some bankers are now asking themselves is did they

The recent history of project fuance may have lulled some recent spate of Australian pro- banks into a sense of false ject financings to compare how security. Throughout the 1970s they described a potential pro-rising energy prices provided ject loan to a borrower and how a cushion for the substantial they described it to their own cost over-runs, delays and credit committees. It is likely problems which might otherwise have jeopardised the finof emphasis, especially in the ancing of many of the projects.

There are a number of areas in recent financings where the banks have gone further in but there are grounds for sus- accepting project risks than hitherto has been the case. Resource risk. Most banks work on the basis of two times

undoubted mineral wealth made Completion risk. Banks have traditionally shied away from accepting the risk that projects will not be completed. However, several recent Australian financings have involved the banks effectively taking this risk on their books. Completion guarantees by the project sponsors have been replaced by weak "completion tests" and there is little to prevent some borrowers from walking away from a project which runs into

difficulties.

• Marketing risks. These can be divided into price and volume risks and despite the existence of long-term sales contracts some recent Australian project financings involve the banks taking an increasing risk on

William Hall

n. Cal. Gas‡	50	1989	7	143	100	Morgan Stanley	<b>14.750</b>	Swed. Export Credit
ozentrale1	50	1989	7	15 <u>1</u>	100	CSFB, Morgan Stanley	. 15.250	Fujitec**§ Life Co.**
nbroke Capital‡	200	1992	10	13}	100	Morgan Stanley	13.750	KKW Philipsburg**‡

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U.S. DOLLARS		•						SWISS FRANC
Sthn. Cal. Gast	50	1989	7	143	100	Morgan Stanley	14,750	Swed. Export
Girozentrale1	50	1989	7	15½	100	CSFB, Morgan Stanle	y . 15.250	Fujitec**§ Life Co.**
Pembroke Capital‡	200	1992	10	13}	100	Morgan Stanley	13.750	KKW Philipsb
Norwegian A/S Ex. Fin.††	t 150	1992	70	134	700	Merrill Lynch .	73 <b>.37</b> 5	KKW Philipsb
Deutsche Fin. NV**‡	200	1989	7	13½	100	Deutsche Bank, CSFI Merrill Lynch	3, 13.500	Domtar Fin.**; EDF‡ World Bank**
Bank fuer Arbiet und Wirtschaft   1	40	1996	8	540	100	Kidder Peabody	_	Jap. Elec. Pow
Fluor Corp.1	100	1989	7	14	100	Morgan Guaranty	14.000	GUILDERS
World Bank††±	250	1987	5	13.45	100	Merrill Lynch .	13.450	World Bank Sears Ovs. Fin
World Bank††‡	700	1992	10	13	100	Merrill Lynch	13.625	Sears Ots, Fin
D-MARKS								Bank Mees & I
Norsk Hydro‡	100	7 <b>992</b>	10	9	99 <u>1</u>	Deutsche Bank	9.078	YEN
World Bank!	200	1992	10	9	100	Deutsche Bank	9.000	Prov. of Quebo
<b>-</b>	nt priced.	‡ Final tem	15. °° i	Placement.	† Floating	rate note, • Minimum.	§ Convertible.	11 Registered with U.
		•						

Borrowers	Amount m	Maturity	Av. life years	Coupon %	Price	Lead manager	Offer yield %
SWISS FRANCS							
Swed. Export Credit!	100	1991	_	71	99}	SBC	7.290
Fujitec**§	50	1987	_	• ~	100	SBC	
Life Co.**	40	1987	-	6 <del>}</del>	•	CS .	
KKW Philipsburg**‡	25	1987		7 2	100	CS	7.250
KKW Philipsburg**I	25	1988	_	71	100	CS ·	7.375
Domtar Fin.**I	70	1987		71	100	SBC	7.500
EDF±	100	1992	_	67	100	UBS	6.875
World Bank**1	450	1988		7 <u>î</u>	100	UBS	7.250
Jap. Elec. Power	100	1992	_	•	•	UBS	6.625
GUILDERS							
World Bank	250	19 <del>9</del> 2	8	11	106	ABN	11.000
Sears Ovs. Fin.	100	1987	8 5	10 <del>'</del>	100	ABN, Dean Witter	
						Reynolds Ovs.	10.250
Bank Mees & Hope	75	1987	5	10	700	Bank Mees & Hope	10.000
YEN							
Prov. of Quebect .	20bn	1992	9	8.7	100	Nomura Secs.	8.700

This announcement appears as a matter of record only

Perpetual Trustee Company (Canberra) Limited as Trustee of



MANAGED BY

**CSR LIMITED** 

Cooper Basin Petroleum Multicurrency Project Financing

### US\$800,000,000

PRINCIPAL FACILITY

LEAD MANAGED BY

US\$50,000,000

US\$100,000,000

STANDBY FACILITY

CONTINGENT FACILITY

Bank of New South Wales Chase Manhattan Capital Markets Group Continental Illinois National Bank and Trust Company of Chicago

Canadian Imperial Bank Group Citicorp International Group National Westminster Bank Group

PROVIDED BY

Bank of New South Wales The Chase Manhattan Bank, N.A. Continental Illinois National Bank and Trust Company of Chicago

Bank of America NT & SA LBI Australia Limited Société Générale

1)

Australia and New Zealand Banking Group Commonwealth Trading Bank of Australia Melion Bank, N.A.

The Chase Manhattan Bank, N.A.

Canadian Imperial Bank of Commerce Citibank, N.A. National Westminster Bank PLC

The Commercial Banking Company of Sydney Limited SFE Banking Corporation Limited Union Bank of Switzerland

Australian Industry Development Corporation The Hongkong and Shanghai Banking Corporation Sumitomo Bank Merchant Banking Group

**AUSTRALIAN AGENT** Bank of New South Wales



US \$75,000,000

## The Development Bank of Singapore Limited

15% Notes Due August 12, 1989 75,000 Warrants to Purchase US \$75,000,000 143% Notes Due August 12, 1989

MORGAN GUARANTY LTD BANK OF TOKYO INTERNATIONAL LIMITED BARING BROTHERS & Co., LIMITED CREDIT SUISSE FIRST BOSTON LIMITED MANUFACTURERS HANOVER LIMITED Morgan Stanley International STANDARD CHARTERED MERCHANT BANK ASIA United Overseas Bank Limited

DAIWA EUROPE LIMITED BANQUE NATIONALE DE PARIS COMMERZBANK AKTIENGESELLSCHAFT THE HONGKONG BANK GROUP MERRILL LYNCH INTERNATIONAL & Co. Société Générale de Banque S.A. Swiss Bank Corporation International S. G. WARBURG & Co. LTD.

Ambo International Limited Algemene Bank Nederland N.V. ACKROYD & SMITHERS PLC BANK OF AMERICA INTERNATIONAL LIMITED BANK OF HELSINKI LTD. ARAB BANKING CORPORATION (ABC) BANQUE DE L'UNION EUROPÉENE BANQUE BRUXELLES LAMBERT S.A. BANQUE INDOSUEZ BAYERISCHE LANDESBANK GIROZENTRALE BANQUE NATIONALE DE PARIS (SOUTH EAST ASIA) LITO. CHASE MANHATTAN CAPITAL MARKETS GROUP BERLINER HANDELS- UND FRANKFURTER BANK CHEMICAL BANK INTERNATIONAL GROUP CHRISTIANIA BANK OG KREDITKASSE CITICORP INTERNATIONAL GROUP Crédit Commercial de France CREDITANSTALT-BANKVEREIN COUNTY BANK LIMITED EUROPEAN BANKING COMPANY LIMITED Dresoner Bank DAI-ICHI KANGYO INTERNATIONAL LIMITED GENOSSENSCHAFTLICHE ZENTRALBANK AG FUJI INTERNATIONAL FINANCE LIMITED JARDINE FLEMING & COMPANY LTD. HAMBEOS BANK LIMPTED GOLDMAN SACHS INTERNATIONAL CORP. KLEINWORT, BENSON LIMITED KIDDER, PEABODY INTERNATIONAL LIMITED MITSUBISHI BANK (EUROPE) S.A. LTCB INTERNATIONAL LIMITED LLOYDS BANK INTERNATIONAL LIMITED MORGAN GUARANTY PACIFIC LIMITED Morgan Grenfell & Co. Limited SAMUEL MONTAGU & Co. LINCTED OVERSEAS UNION BANK LIMITED Nomura International Limited THE NIKKO SECURITIES CO., (EUROPE) LTD. SALOMON BROTHERS INTERNATIONAL RABOBANK NEDERLAND PIERSON, HELDRING & PIERSON N.V. J. HENRY SCHRODER WAGG & CO. LIMITED SAUDI INTERNATIONAL BANK STRAUSS, TURNBULL & Co. Société Générale Skandinaviska Enskilda Banken

THE TAIYO KOBE BANK (LUXEMBOURG) S.A. WOOD GUNDY LIMITED

Union Bank of Switzerland (Securities) Limited

August 12, 1982

All of these securities have been sold. This announcement appears as a matter of record only.

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U.S. BONDS

# Yield curve steepens sharply as rally gathers momentum

week -Aubrey G. Langston

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stock and bond markets posted point a fortnight ago. sharp price improvements last -Salomos Brothers Inc.

The credit market's euphoria would have been complete had obliged and cut the discount rate as had been widely

U.S. INTEREST RATES (%) Week to Week to Aug. 20 Aug. 13

expected on Friday. As it is the markets have that prospect still to look forward too. With interest rates already

dropping all the markets appeared to need was for the economic gurus to change their tune. On Tuesday Dr Henry Kaufman, the Salomon Brothers economist did just that reversing his previously gloomy interest rate forecasts. The markets responded.

The yield curve steepened sharply to record differentials between short and long government bonds. By the end of the week the spread between threemonth bills and the treasury long bond extended to almost 4.8 percentage points com-pared to just over three points

two weeks ago. The rush into higher quality issues gained further momentum as the problems of the Mexican Government became clear and brought with them unfounded rumours that a major U.S. bank faced difficulties as a result. Investors bought treasury

BUYING PANIC engulfed bills aggressively and as a result the U.S. securities market last yields fell substantially. Despite some disappointment on Friday because the Fed did not "The frenetic activity in the cut the discount rate, the yield fixed income markets has been differential between three-accompanied by unusually month treasury bills and certi-

sharp declines in yields"—Smith ficates of deposit widened to Barney, Harris Upham and Co. about 2.7 percentage points "A dramatic week. Both the compared with just over one Against this background the Fed funds rate dropped to

"The dramatic rally of the about 8.5 per cent late in the week from an average of around the character yields securely into the circulation of the 10.10 per cent in recent weeks. The Fed's accommodating the single-digit range and bond prices to their highest levels this year "—Chase Manhattan. The Fed's accommodating stance was pur down to a combination of continuing concern of the continuing continuing concern of the continuing cont nation of continuing concern of the weak domestic economy and the problems of some members of the U.S. financial community coupled with concern over the financial problems faced by many foreign countries.

The improvement in Treasury Bill prices which resulted in a drop in yields last week of between four-fifths of a point and two points, put the rally on a par with last autumn's bull market.

This means that within the past two months the rally has brought declines in yields of about two points in long issues and six points in money market

The raily was aided towards the end of the week by more good news. The passage of President Ronald Reagan's \$98.3bn tax bill helped push fears about the mushrooming Federal government deficit into the background, at least tempo-

The decline in M1-the broad U.S. money supply measure— hy \$100m was pretty much as expected and leaves the money supply growth a comfortable \$1.3bn inside the Fed's targets.

In the corporate bond market vield spreads between high grade notes and medium quality corporate bonds narrowed slightly last week reflecting investors' desires to lock into the still relatively high current

New issue volume surged as shelf registrations were brought into the market and about \$2.3bn in new corporate issues were sold as the market responded dramatically to the sharp drop in yields.

# Fokker confident despite sluggish first six months

New orders, however, are said to January and June. be in prospect and Fokker is results for 1982 as a whole.

airlines for important new in interest charges, and this, to- overall result.

months of this year against the F27, turbo-prop airliners and in operating results. same period in 1981—from F28 jetliners. Ten F27s and two The first half net profit F1 5.84m to F1 6m (USS2.2m). F28s were delivered between equalled last year's figure prin-

In a statement accompanying same period in 1981. Delayed market conditions during the continuing with a number of than planned caused an increase second half and an improved

NET PROFIT at Fokker, the orders including fleet renewals. gether with the need to raise Dutch aerospace company, rose This year. Fokker has so far the provisions for potential deonly slightly in the first six booked orders for a total of 24 livery risks, caused a decrease

The first half net profit cipally because of extraordinary Turnover for the first half dividend income from an affilicautiously optimistic about was F1 536m-an increase of ated company, and a lower effec-Fl 32m, or 6 per cent, over the tive tax rate. Fokker says that its half year figures, the comdeliveries of aircraft for which period were unfavourable but
pany says that negotiations are company financing was later sees increased sales in the

# Agreement expected on Dome debts

BY ROBERT GIBBENS IN MONTREAL

PETROLEUM. Canadian energy company, says restructuring continue, but no agreement has yet been reached. However, oil industry analysts believe a deal is close, under which the four banks with loans gain of 50 cents or 14 per cent

talks with its bankers on debt accept Government-guaranteed at CS3.95. preferred stock in part payment. Speculation that an agreement was near brought a week's

the outstanding to Dome totalling in the market price of Dome says about CS1.3bn (U.S.S1.4bn) will shares, which closed on Friday

Reports in Calgary, the focal town of the oil industry, claim the Government may guarantee vertible preferred stock.

C\$1.5bn Dome issue of con-

### Loss ahead at Allis **Chalmers**

ANOTHER "MAJOR loss" is expected this year at Allis-Chalmers, the Milwaukee-based machinery manufacturer, chiefly because of production shutdowns at its agricultural equipment plants. The company said that industry-wide demand in the first half of 1982 had been the lowest in over a decade and was growing worse.

In fiscal 1981, Allis suffered a pre-tax loss of \$90m and Wall Street analysis have warned that this year's loss could exceed

Allis said it will close down production at all of its agricultural equipment plants for at least eight weeks of the fourth quarter. These divisions, which produce tractors and combine harvesters, represent about onethird of group sales.

The company also expects operating losses in its materialhandling equipment businessabout 11 per cent of sales:

# Bell Canada rejects plea for inquiry

BY VICTOR MACKIE IN OTTAWA

BELL CANADA, the nation's Mr Jean de Grandpre, chair. largest supplier of telecommuni- man of Bell, said the company cations equipment, will not wait has no intention of waiting for for a public inquiry before proceeding with a controversial reorganisation plan overwhelmingly approved this week by its shareholders.

The Montreal-based communications giant announced that it will seek approval from Quebec's Superior Court for its plan despite a plea by the Federal Government's Restrictive Trade Practices Commission the 1981 deficit of \$2.86 a share. for a full public inquiry into the move.

The plan to establish a new. mregulated holding company called Bell Canada Enterprises (BCE) which would control the Bell group of 80 companies, was approved by holders of 98.8 per cent of the 110.5m common shares.

A similar percentage of shares in five other series also

metring its vast reorganisation. He has accused the Federal

Government of continuous "harassment" of his company by Federal combines and trade investigators since 1986.

"We can't stall for 17 years without any action being taken. That's why we think it's time to act now." Mr de Grandpre said his company does not require approval of the Canadian Radio-Television and Telecommunications Commis. sion (CRTC) for its action.

On Friday, the Attorney-General of Canada, filed a motion in the Quebec Superior Court maintaining that the Court has no jurisdiction to approve the reorganisation until the plan has received prior approval by the CRTC. A court hearing has been set for next

### Greyhound elects new chairman

• GREYHOUND CORP. has elected Mr John W. Teets chairman succeeding Mr Gerald H. Trautman who retires. Mr Teets. was a vice chairman, will continue as chief executive officer. Mr Trautman will become honorary chairman.

Mr Frank L. Nageotte has been named president succeeding Mr Ralph Balastini, who becomes a vice chairman and continues as chief financial officer. Mr Nagectie, who was a vice chair man, will continue as chief cperating officer.

Mr Maurice E. Culhane has been elected president of INLAND STEEL URBAN DEV-ELOPMENT CORP. (INSTUD). the shelter subsidiary of Inland Steel Co. Mr Culhane is vice-president, finance at INSTUD. Succeeding Mr Culhane will be Mr Robert G. Smith, vice-presi-dent, finance at the Inland Steel Development Corp., one of INSTUD'S four operating

Mr Walter R. Herr has been

representative assigned to Washington, DC, office.

 Mr Michael A. Perlino, vice-president, HARRIS BANK, Chicago, has been named manager of the bank's Singapore branch. Mr Perlino previously served in the bank's trading group in the investment depart-

• RAYMOND INTERNATIONAL INC has appointed Mr J. Hugh Roff, Jr. chairman, president and chief executive officer of United Energy Resources, Inc. Houston and Mr W. Thomas York, chairman and chief executive officer of AMF Incorporated, White Plains, NY. directors. Mr Jack B. St. Clair. a member

of Raymond International's hoard of directors since 1979. has resigned. Mr St. Clair, who is also a director of Air Products and Chemicals Inc. said he wished to avoid any conflict in view of Air Products' recent acquisition of Stearns-Roger

• The NORWICH WINTER-THUR GROUP states that Mr C. L. Collins will retire as general manager of Norwich Winterthur (NZ) on September 30. Mr K. J. Sarginson, development manager. Paul Taylor appointed deputy director of has been appointed to succeed government relations for COLT Mr Collins from October 1.

# INTERNATIONAL APPOINTMENTS

INDUSTRIES. Mr Herr joined @ Mr. Peter E. McMenemy, mar-Colf Industries in 1978 as a ketting director Textile Fibres Du representative assigned to Washment manager DU PONT DE NEMOURS INTERNATIONAL SA. on September 1 based in



Mr P. E. McMenemy, development manager. Du Pont de Nemours International, Geneva.

Geneva, Switzerland. He will be esponsible for development of husiness opportunities for all Du Africa and Socialist States.

Mr Courtney C. Caldwell has been elected a vice president in the metropolitan banking divi-sion at AMERICAN SECURITY BANK. Washington DC. Mr

U.S. DOLLAR

U.S. DOLLAR
STRAIGHTS
Astra Life 15 86.37
Amer Int Fin 16% 32 75
Amer O/S Fin 14% 83 75
ATT 14% 83 ... 400
Saker Int Fin 0 0 92 225
BHP France 14% 83 150
8k. Amer N7 SA 12 37 200
Ri Montreal 14% 87 100

Can Pec Sec. 15 28... 75
Carolina Power 161, 29 60
CIBC 16 67 ... 100
Citicorp O/S 15 34/92 100
Citicorp O/S 15 35/97 125
COA 157 97 ... 75
Con. Illinois 152 89 ... 100
Duke Pwr. O/S 157 85 60
ECSC 142 87 (April) ... 80
EIB 157 89 ... 150
EIB 157 89 ... 150
ERS 157 89 ... 150
Gen. Elec. Credit 0.0 92 400
Gen. Elec. Credit 0.0 93 400
Getty Oil Int. 14 89 ... 125
GMAC O/S Fin. 15 89 125
GMAC O/S Fin. 14 89 150
New Brunswick 154 87 76
New Brunswick 154 87 76
New Brunswick 164 89 75
Nova Scoria Pr. 154 89 75
Nova Scoria Pr. 154 89 150
Pac Gas & El. 157 89 45
Phillips Petrol 14 89 200
R J Rynlds. O/S 0 0 92 400
Saskatchewan 16 89 125
Shall Canada 144 92 22
Saun 154 67 ... 100
Superior O/S Fin. 14 59 125
Swed. Exp. Cr. 144 90 100
Swed. Exp. Cr. 144 97 100
Wells Fargo Int. 15 87 75
World Bank 15 87 ... 500

SWISS FRANC

STRAIGHTS

Arr Canada 64, 92

Ind. Fund Finland 64, 93

Ind. Fund Finlan

Caldwell comes to American Security from Central National Bank of Maryland where he of Maryland where he served as a senior vice president. will serve as a corporate banking officer at American Security.

Mr Max S. Bass, president and chief executive officer of M & T Chemicals Inc. has been elected a vice president of TEXASGULF INC. Both Texasgulf, head-quartered in Stamford, C.T. and & T. headquartered in Woodbridge, NJ, are wholly-owned subsidiaries of Societe Nationale EH Aquitaine, Paris-based natural resources company. Mr Bass will continue in his present capacities at Woodbridge. AMERICAN MICROSYSTEMS,

INC. (AMI) has appointed Mr. William D. Baker as vice-president of manufacturing. He was vice-president of AMI's Pocatello. Idaho IC production facility. 6 Mr David J. Harrison, group

chief executive of BOWRING BURGESS MARSH AND BURGESS MARSH AND McLENNAN HOLDINGS. New Zealand, has been re-elected as president.

Mr Mark R. Joseph, president of the Anker Energy Corp., New York has been elected chairman of the COAL EXPORTER'S ASSOCIATION OF THE UNITED STATES. Mr Albert W. Nemenz. vice-president of Jno. McCall Coal Co., Baltimore, and national Inc., San Francisco, have been elected vice-chairmen

● Mr H. Leighton Steward has ● WHIRLPOOL CORPORATION been elected senior vice-president exploration and production, of THE LOUISIANA LAND AND EXPLORATION COMPANY, a new position within the company. He will be based in New Orleans.

• Mr Kenneth J. Thygerson, has been named president and chief . CROCKER NATIONAL COR CORP. Mr Thygerson succeeds Mr Philip R. Brinkerhoff, president since 1977 of the Mortgage Corp., who has become president and chief operating officer of First Charter Financial Corp. and its subsidiary. American Savings and Loan Association of Beverley Hills, California.

• Mr George J. Sella, Jr., president of American Cyanamid Company, has been nominated as • MORGAN GUARANTY has a member of the board of directors of THE PILLSBURY COM-

Mr Pat H. Moore has been elected senior vice-president of RAYMOND INTERNATIONAL INC. a new position with responsibility for developing a corporate-wide marketing pro-gramme. Mr Moore joined Raymond International in 1980 as a senior vice-president and

101½ 102½ + 0½ + 2½ 12.88
103¾ 104¾ + 0¾ + 2¾ 12.87
105 106 + 0¾ + 3¾ 12.88
100⅓ 1011¾ + 0½ + 2 14.27
105¾ 106¾ + 0½ + 2 14.27
105¾ 106¾ + 0½ + 1½ 13.56
100¾ 101 + 0½ + 1½ 14.80
101¾ 102¾ + 0½ + 1½ 13.13
104 104¾ 0 + 1½ 14.58
103 104 + 1½ + 1¾ 13.13
105 104 + 1½ + 1¾ 13.13
105 104 + 1½ + 1¾ 13.13
105 104 + 1½ + 2¾ 12.41
100½ 70½ + 0½ + 2 14.37
100½ 70½ + 0½ + 2 14.37
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100½ 70½ + 0½ + 2 14.37
100½ 70½ + 0½ + 2 14.37
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100½ 70½ + 0½ + 2 14.37
100½ 70½ + 0½ + 2 14.37
100½ 70½ 11.49

Spread Bid Offer C.dte C.con C.yld

Mr George W. Tarleton, vice- a member of the board of dire-president marketing, Utah Inter-tors of Raymond International Builders Inc. a wholly-owned

> has elected Mr Jack D. Sparks chairman of the board and chief executive office from December
>
> 1. He replaces Mr John H. Platts
> who will continue to serve as
> a director and chairman of the board's finance committee.

executive officer of the FEDER-PORATION has elected Mr John AL HOME LOAN MORTGAGE B. Place chairman and chief CORP. Mr Thygerson succeeds executive officer, from September 1. He succeeds Mr Thomas R. Wilcox who retires.

. Ar Beredith Q. Nelson will become a senior vice-president of KIMBERLY-CLARK CORP and president of the K-C News-print, Pulp and Forest Products Group to be established Octo ber 1.

appointed Miss Miriam Raney manager of its loan syndication department. Miss Raney was previously a vice-president in Morgan Guaranty Trust Com-pany's private placement advisory and leasing department, based in New York.

• Mr Peter J. B. Duneau has been appointed managing director of SHELL (SWITZER-

### FT INTERNATIONAL BOND SERVICE

This announcement appears as a matter of record only 2nd August 1982

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Guaranteed by The Republic of India

### US\$ 198,000,000

Finance for the purchase of three A-300 B4 aircraft and related spare parts from Airbus Industrie.

Lead Managed by

Lloyds Bank International Limited Bank of India Banque Paribas Deutsche Girozentrale-Deutsche Kommunalbank

State Bank of India Banque Nationale de Paris CIBC Limited Midland Bank plc

### US\$ 88,000,000

Eurocurrency Loan

Lloyds Bank International Limited Paribas Finance Ltd. Midland Bank plc IBI International Limited Société Générale Bank Limited Banque Nationale de Paris p. l.c. United Commercial Bank

Canadian Imperial Bank Group State Bank of India Indosuez Finance (UK) Limited Bank of Baroda Crédit du Nord S.A.

### US\$ 22,000,000

Sterling Buver Credit with the funding and payment guarantee of Export Credits Goarantee Department

Midland Bankplc IB] International Limited Canadian Imperial Bank Group Crédit du Nord S.A. Banque Indosuez State Bank of India Société Générale Bank Limited Lloyds Bank Plc Banque Paribas (London)

# US\$ 44,000,000

D.M. Buver Credit guaranteed by the Federal Republic of Genarmy represented by Hermes Kreditversicherung A.G.

Deutsche Girozentrale-Deutsche Kommunalhank Hessische Landesbank Girozentrale Landesbank Rheinland-Pfalz Girozentrale Société Générale

Bank of Tokyo (Deutschland) A.G. Industriekreditbank A.G. Lloyds Bank International Limited Kreditanstalt für Wiederaufban

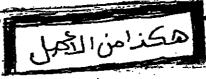
guaranteed ly Compagnie Française d'Assirance pour le

Banque Française du Commerce Extérieur Banque Nationale de Paris Crédit Lyonnais Banque Indosuez Société Générale Citibank, N.A. Lloyds Bank International (France) Limited

### US\$ 44,000,000

FF Buver Credit

### Crédit du Nord S.A. State Bank of India



### 971, 981, 0 +01, 2.57 1011, 1021, 0 +04, 8.80 951, 964, 0 0 9.00 EIB 84 92 Int.-Amer Dev. 81 91 Japan Airlines 7% B7 . 95', 95'4

New Zeeland St. 47 World Bank 8's 92 Average price changes . On day 0 on week ±0% OTHER STRAIGHTS. Bell Canada 16 89 CS Bid Offer day week Yield 1991 100's -Dig +71 18.02 Can. Ublities 17 87 CS †1014 1014 - 04 + 1 16 53 Gaz Metro. 174 90 C\$ ... 1887, 99 199-100 199-100 90-90-99-99-100-90-100-9 107-100-99-100-9 107-100-99-10 Q. Hyd. 1612 89 (M) CS Quebec Prov. 161, 89 CS Quebec Prov. 161, 89 CS U. Bk, Nwy. 91, 90 EUA Amro Bank 10 87 FI Eurohima 101, 89 FI Luciand 101, 97

FLOATING RATE

FLOATING RATE

NOTES

Spread Bid Offer C. dte C. cpn C. yid

Aliad Irish 5½ 92 ... 0½ 98% 99% 15/10 15.59 15.83

Bk. of Tokyo 5½ 91 (b) 0½ 100% 101% 8/12 15½ 15.10

Bk. Nova Scotis 5½ 93 0½ 99½ 29/10 15; 15.20

BFCE 5½ 38 ... 0½ 100 100% 22/10 15 14.94

BFCE 5½ 38 ... 0½ 100 100% 22/10 15; 15.71

Calsae Nat Tele. 5½ 90 0½ 100 100% 22/10 15% 15.71

CCCE 5½ 2002 ... 0½ 98% 99% 11/12 15½ 15.57

CEPME 5½ 92 ... 0½ 99% 100½ 22/9 15.62 15.30

CPME 5½ 92 ... 0½ 99% 100½ 22/9 15.62 15.30

CPME 5½ 92 ... 0½ 99% 100½ 22/9 15.62 15.30

CPMI 5½ 92 ... 0½ 99% 100½ 22/9 15.62 15.30

CPMI 10 Nord 5½ 92 ... 0½ 99% 100½ 22/9 15.62 15.30

Credit Agnicole 5½ 97 ... 0½ 99% 100½ 22/9 15.62 15.87 16.83

Credit Lyonnais 5½ 97 ... 0½ 99% 20½ 101½ 22/12 15.87 16.83

Credit Lyonnais 5½ 94 ... 0½ 99% 25/11 12/1 16.93 16.63

Credit Lyonnais 5½ 94 ... 0½ 99% 25/11 12/1 16.93 16.63

Credit Lyonnais 5½ 94 ... 0½ 99% 25/11 12/1 14/2 16.63

Credit Lyonnais 5½ 94 ... 0½ 99% 25/11 12/1 14/2 14.99

Long Tarth Cred. 5½ 93 ... 0½ 100 100½ 23/11 14/2 14.99

Long Tarth Cred. 5½ 92 ... 00 100½ 23/11 14/2 14.99

J. P. Morgan 5½ 97 ... 50¼ 100 100½ 23/11 14/2 14.99

New Zealand 5½ 87 ... 50¼ 100 100½ 27/10 15.55 15.49

New Zealand 5½ 87 ... 0½ 90% 100½ 10/2 13/2 13.84

Offshore Maning 5½ 91 ... 0% 100 100½ 10/2 13/2 13.84

Offshore Maning 5½ 91 ... 0% 100 100½ 10/2 13/2 13.84

Scopland Int. 5½ 92 ... 0% 99 99½ 25/11 15 31 15.62

Scopland Int. 5½ 92 ... 0% 99 99½ 25/11 15 31 15.62

Scopland Int. 5½ 92 ... 0% 99% 99½ 25/11 15 31 15.62

Scopland Denin'n 5½ 97 ... 0% 99% 99½ 1/P 15 31 15.37

Scandard Chart 5½ 91 ... 0% 100 100½ 18/11 14/2 14.94

Average price changes ... 0n day 0 on vreek 4 0½ DEUTSCHE MARK
STRAIGHTS

Avierrate 9's 92

Avierrate 9's 91

Avierrate 9's 91

Avierrate 9's 92

100

Barrlays 0'f 5' 6 95', -0's +0's 9.06

Barrlays 0'f 5' 6 95', -0's +0's 9.06

Barrlays 0'f 5' 6 95', 95', -0's +0's 9.06

Barrlays 0'f 5' 6 95', 95', -0's +0's 9.06

Barrlays 0'f 5' 6 95', 95', -0's +0's 9.06

Barrlays 0'f 5' 6 95', 95', -0's +0's 9.06

Barrlays 0'f 5' 6 95', 95', -0's +0's 9.06

Barrlays 0'f 5' 6 95', 95', -0's +0's 9.06

Barrlays 0'f 5' 6 95', 95', -0's +0's 9.06

Barrlays 0'f 5' 6 95', -0's +0's 9.06

Barrlays 0'f 5' 92

Conga 6'f 8' 92

Conga 6'f 8' 92

Conga 7'f 95', -0's +0's 9.20

Conga 7'f 95', -0's +0's 9.20

Conga 7'f 95', -0's +0's 9.10

Conga 7'f 92

Conga 7'f 92

100

Conga 7'f 92

100

FDF 9'f 92

100

FDF 9'f 92

100

FDF 9'f 92

100

100'f 101's +0's +0's 9.20

100'f 101's +0's +0's 9.20

100'f 101's +0's +0's 9.35

Narol Financiera 11 90

150

North Hydro 2'f 92

150

Ousbac 10'f 92

150

160'f 101's +0's +0's 9.59

Renfe 10 92

100

100'f 101's +0's -0's 8.08

100

100'f 101's +0's +0's 9.59

100'f 101's +0's +0's 9.59

100

100'f 101's +

CONVERTIBLE	Cnv	Cny.			Chg	
40ND\$	ders	phee	Birl	Offer	day	Prem
Aprilamoto 💤 96	7/81	933	78	77:.	+0-	7.93
Bow Valley Inv. 8 95			97	38	-0	
6ndgestone Tire 5½ 26	3/82	470	83	84	÷0:,	2,39
Свлол 🗗 95			96	98		
Canon 7 37				108',		
Chigai Pharm. 74 96				113		
Fujitsu Fanuc 42, 96						25.31
Furukawa Elec 54 96			88			-5.46
Hitachi Cable 54 95			83¾		+14	
Hitachi Crest. Con. 5 96			63		- C-,	
Honda Motor 51, 97			827		-24	
Kewasaki 5% 96			56'-2			
Мати Б 96			90%			5.83
Minelta Camera 5 96			60'7			33.66
Minarco 94 97			186			15.53
Mureta 51/2 26			. 637,		-0;	
NKK 64.98.						<del>-,2</del> 2.35
Nippon Electric 54 97				30		
Onent Finance 5ta 37			73		+0.	
Sanyo Electric 5 96.			62			18.60
Summomo Elec. 51, 97				30		16.50
Sumitomo Met. 5½ 95			544,		-0%	
Swiss 8k Con. 64 90 Konichiroky 64 88 DM			73	75	O.	32.30
Mitsubishi H 6 89 DM						18.42
מוש כס ס ה וקצוסטבוות	E/ 94	263	95.1	26.7	-04	34. <i>6</i> 0

with patt in any form not permitted without written

EUROBOND TURNOVER (nominal value in 5m)

Cedel cicar U.S. 8 honds

+5,536.8 9,920.8 Previous week 7,340.1 9,861.5 Other hends ÷718.3 Last week ...

Previous week 806.8

 Four working days only. No information available-

previous day's price. † Only one market maker supplied a price. STRAIGHT BONDS: The yield

is the yield to redemption of

the mid-price: the amount issued is in millions of currency units except for Yen bonds where it is in billions. Change on werk = Change over price a week carlier. FLOATING RATE NOTES: Denominated in dollars unless otherwise indicated. Coupon

shown is minimum. Cdte=Date next coupon becomes effective.

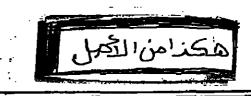
Spread = Marzin above six-month offered rate (tithree-month)

Sabove mean rate) for U.S. dollars. C.cpn = The current coupon. C.rid = The current CONVERTIBLE BONDS: De-nominated in dollars unless eiberwise indicated. Chg. day = Change on day. One date=Fire date for conversion into shares Cnv price=Nominal amount of bond per share expressed in currency of share at conversion rate fixed at issue. Prem = Per centage premium of the current

effective price of acquiring shares via the bond over the most recent price of the shares. The list shows the 200 latert international bonds for which an adequate secondary market exists. The prices over the past week were supplied by Krediesbank NV: Credit Commercial de France: Credit Lyonnais. Com-merzbank AG, Deutsche Bank AG: Westdeutsche Landeshank Girozenirale, Banque Generale du Luxembourg SA Banque Internationale Luxembourg Krediethank Luxembourg Algemene Bank Nederland NV: Pierson, Heidring and Pierson; Condit Suprofessor Calle Bank Credit Suese/Swiss Credit Bank. Union Bank of Switzerland; Akroyd and Smithers; Bank of Tokyo International Barkers Trust International Chase Man-hattan: Citicorp International Bank: Credit Commercial de France (Securities) Lendon: Daiwa Europe NV: Delice Securities (UK); EBC, First Chicago; Goldman Sachs International Corporation: Hambres Bank: IBJ International; Kidder Peabody International; Morral! Lynch: Morran Stanley International: Nomura International;
Orion Royal Bank; Robert
Fleming and Co.; Samuel
Montagu and Co., Srandingvian
Bank; Society Generale Straus;
Translation Turnbull Sumitano Finance International, S. G. Warburg and Co.: Word Gundy.

Ciosing prices on August 20

# WORLD STOCK MARKETS



SOL S	NEW YORK	. 1503   Atto.		1962   Aug.			, HOLLAND	HONG KONG
ects	1982   High Low   Stock   20	1842 Aug.  Migh   Low   Stock   20  3312   2672   Columbia Gas 2832 3314   1772   Combined int   21 3562   21   Combined int   21 24   1912   Combined int   2352 6734   4834   Comm. Satelite 584	High   Low   Stock   20	High   Low   Stock   20	Migh   Lew   Stock   20	1982   Stock   Aug.	1982   Aug. 20   Price   Fis	1982 Aug. 20 Price HK5  22.50 9.5 Cheung Kong 11.1 2 1.55:Cosmos Prop 1.70 11.70 9.2 (Cross Harbour 6.7 150 59 Hang Song Bank 5.80 5.95: 3.45:HK Electric 5.80 5.95: 3.45:HK Kowloon Wh. 3.72
	271e   151e Advanced Moro. 24 471a   351e Actra Life & Gaz   354e 141a   351e Actra Life & Gaz   354e 141a   351e Anmanson (H.F.)   131e 373e   24	15	341e   241e   Gulf Oil   29   303e   233e   Hall (FB     221e   261e   252e   Hall (FB     221e   261e   252e   Hall (FB     221e   261e   252e   Hall (FB     252e   Hall (FB     252e   Hall (FB     252e   Hall (FB     252e   Hanna Mining   19   174e   125e   Harris Barco   254e   262e   Harris Corp   253e   262e   Harris Corp   253e   191e   155e   Harris Corp   155e   117e   156e   Harris Corp   156e   117e   156e	5814 4572 Morgan (JP) 521; 59 5015 Motorolo 551; 1145 Munsingwaar 115; 3114 1512 Murhy Ol 116; 5575 225 Nabisso Brands 55; 2514 18 Nat. Can 1675 2415 1556 Nat. Can 1675 241 197 Nat. Dist. Chem. 201; 241 1814 1212 Nat. MedicalEnt 15 243 134 Nat. MedicalEnt 15 243 134 Nat. Semicology 151;	27   27   27   27   27   27   27   27	10   Asbestos   1014   2312   1712   8k Montres   1014   2514   2712   20   8k Move Scotia   2514   2.10   8asic Resources   2.10   2514   2.10   2	37 25,3 Caland Hidgs 25,5 Caland Hidgs 25,5 Caland Hidgs 25,5 161,5 181,2 Elsevier-NDU nv. 151 151 105 Ennia 22,5 78,7 69 EuroCom Tet 74,5 61,5 Gist-Brocades 77,4 65,5 47,5 Heinsken 55,5 18,3 13,9 Hoogovens 14,5 9 5,0 Hunter Douglas 7,9 25,7 15,5 int-Muller 16 81,5 KLM 88,5 30,4 20 Nagrde'n 23,2 119,8 104 Nat Ned Cert 114 37,3 25 Ned Cred Bank 26,5 147,5 99,6 Ned Mid Bank 101	12.20 8.6 HK Shanghai BK 234.25 25 HK Telaphone 28 18.50 10.7 Hutchison Wps 12.2 18.50 12.00 Jardine Math 15.2 15.15 2.50 New World Dev 2.72 4.35 SKH Props 4.40 4.88 12.60 8.50 Swire Pao A 9.50 6.90 4.15 Wheel'k Mard A 4.57 5.20 3.85 Wheel'k Mard A 4.57 5.20 3.85 Wheel'k Mard A 2.17 IAPAN
	373; 28 Alcoa 273; 48 481; 173; Amal. Sugar 48 481; 173; Amal. Sugar 215; 244; 173; Amal. Gop. 215; 244; 151; Amerada Hess. 191; 183; 91; Am. Broadcast' 44 355; Am. Broadcast' 44 455; Am. Broadcast' 44; 355; 257; Am. Gan. 284; 350; 245; Am. Cyanamid 283;	1958   Cooper Inds	4612 3653 Hewlett Picd	161s   71s   Nat. Standard   81s   241s   14   Nat. Steel   16   16   16   16   16   16   16   1	171s   151s   Southeast Bankg   154   151s   Southeast Bankg   154   151s   Southeast Bankg   154   151s   Southeast Co	231g   281e   Can Packers   287a   29   1814   Can Trusco   2014   201	140 104 Nedlioyd	High   Low   Yeh
	181 <sub>2</sub> 111 <sub>6</sub> Am. Elect. Powr. 177 <sub>6</sub> 50 565 <sub>6</sub> Am. Express 431 <sub>4</sub> 431 <sub>6</sub> 315 <sub>8</sub> Am. Espress 431 <sub>4</sub> 431 <sub>6</sub> 351 <sub>8</sub> Am. Holst & Dk 95 <sub>8</sub> 337 <sub>6</sub> 25 Am. Holst & Dk 95 <sub>8</sub> 331 <sub>2</sub> 25 Am. Holst & Dk 95 <sub>8</sub> 331 <sub>2</sub> 25 Am. Hosp. Suppy 331 <sub>6</sub> 251 <sub>4</sub> 136 <sub>6</sub> Am. Medical inti 25 37 251 <sub>6</sub> Am. Medical inti 25 37 251 <sub>6</sub> Am. Mat. Resces. 271 <sub>6</sub> 37 431 <sub>6</sub> Am. Petins 301 <sub>2</sub> 381 <sub>6</sub> 51 <sub>4</sub> Am. Quasar Pet 6	3039 2234 Crown Cork	21 14-73 Household Intl	415; 204; NL Industries	4014 241e Std Oil Clifornia. 257a 4914 3334 Std.Oil Indiana 257a 3954 271e Std Oil Onlo 293a 1735 1234 Stanley Wiss 15 234e 171e Stauffer Chem 203e 281a 201e Storling Drugs 2334 171e 1254 Storling Drugs 2334 171e 3434 Storling Drugs 291e 3434 1512 Storling Tax I. 291e 345 267e Bun Co 2814 45 261e Sundarand 3134	Sia   Sia   Cont.Bk. Canada   74	162 1 243 Unifever	1,040' 752 Elsai 806 503' 490 Fuji Bank 500 1,520' 1,190 Fuji Film 1,340 1,500' 1,140 Fuji Film 1,340 1,500' 3,580 Fuji Fuji Fanuc 3,760 2,290' 1,710 Green Cross 5,750 650' 459 Hasegawa 450 605' 500 Heliva Rezi Est.: 504 725' 541 Hitachl 577 578' 425 Hitachl Kold 694
	3014   1712   Am. Standard   2244   4714   2515   Am. Standard   4714   4714   5035   50   Am. Tel. & Tel.   5625   5314   2314   Am. Tel. & Tel.   5625   2314   Am. Tel. & Tel.   5015   2672   1814   Am. Tel. & Tel.   5015   2672   1814   Amstar   2038   2474   1814   Amstar   1814   2038   2144   1815   2374   Anchor Hockg   15   5534   2375   Anchor Hockg   15   2375   Archor Daniels   1415   2714   1556   Armstrong CK   1616   1616   1514   655   Amstrong CK   1616   1714	244e   14	344g   251g     C   Inds.   261g   1354   105g     U   Int.   155g   121g   164g   Basic Ind.   155g   145g   14	2514   1476   Newst Steel W   1536   4212   2418   Morton Simon   2514   2213   1612   Morton Simon   20   1718   Occidental Pet   1926   2374   1778   Ogden   19   2314   2814   2814   2819   Ogley & Mrth   32   1414   1178   Olio Edison   1414   1378   Omark   1415   30   2414   Onack   2518	344, 214 Superior Oil	2314 912 Genetar 1114 2.43 1.80 Gt. West Life 1.80 1774 1072 Gulf Canads 1472 6.87 1.60 Gulf Stream Res. 1672 23034 23 Hawk Sid. Can 10 Hollinger Argus 2512 2412 1312 Hudson Bay Mrg 14 1313 Hudson's Bay 11812 1012 4.75 Husky Oi. 1812 452 15 Imasco 2754 244 36 Imasco 2754	135   100   Borregaard   105   153   126   Creditbank   151   151   154   40   Elkem   42.5   350   Kosmos   281   246   155   Storebrand   172.5	345 261 itoh (0). 263 436 354 ito-Hem. 350 1,040 770 ito-Yokade. 365 629 360 JACCS 365 714 541 Jusco 570 376 310 Kajima 315 570 470:Kee Seap. 644 458 351 Kikkoman 365 445; 355 Kirin. 359 1,010 685 Kokuyo 865 530 340 Komatsu 11ft. 348
	261s 176s Assrco. 245s 311s 207s Ashland Oll. 244s 351s 244s Assd. D. Goods. 351s 451s 224s Assd. D. Goods. 351s 451s 224s Auto-Data Prg. 211s 277s 201s Auto-Data Prg. 211s 277s 211s Avco. 203s Avco. 251s 506s 561s Avco. 251s 301s 195s Avco Prod 217s 302s 195s Baker Intl 201s 284s 224s Bait Gas & El. 251s	48½ 36 Dow Jones 405; 405; 3516 12½ Dr. Pepper 1516 2575 20% Duke Power 2234 7519 5875 Du & Pom & 34 191; 15 Easton 4716 2334 16½ Easton 4716 25 1716 24 16 Eastern 4716 4716 1716 1716 24 1716 24 1716 24 1716 24 1716 25 171	2412 1712 Inti. Flavours 2412 83e 27e Inti. Harvester 4 914 714 Inti. Income Prop 417e 327e Inti. Paper 417e 1514 76e Int. Telectifier 85e 305e 221e Inti. Tel & Tel 2614 611e 353e Irving Bank 367e 255e 1914 James (FS) 223e 255e 225e Jewel Cos 325e 25 16 Jim Waiter 241e	1634 101a Oversens Ship	24	1634   10   Inco	159,800;123,800; Assicur Gen	669
10	1918 11 Bangor Punta 124 214 1578 Bank America 1738	7812 56 Eastman Kodak. 7814 1419 1058 Eaton	3212   Johnson & Jns	201s   91s   Parker Drilling   87s	65 4034 Timken 445e 2714 4 Tipperary 434 435 3114 1214 Tonks 15 1355 716 Total Pet 214 234 1666 Transamerica 1934 2434 1912 Transamerica 1934 2434 1914 Transworld 1914 2554 1654 Travellers 1915 886 6 Tricentrol 634	6014   4112   Nithm. Telecom	20,100) 9,900 Toro Assic	635 470 M blahi Corp
2 9 9 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6 6	, 231g 147g Seth Steel	241g   1614   Enserch   167g   167g   507g   3834   Esmark   4314   245g   1836   Ethyl   245g   173g   5   Evans Prod   91g   365g   1814   Ex Cell O   265g   277g   2	1946   Kennametal   2414   2815   2215   Kerr-McGae   2434   2434   2434   1714   Kidde   1812   6565   57   Kimberly-Clark   6018   2434   2334	165e 131s Phila Elect	175s   17f Continents   191s   151   91s   17f Continents   191s   151   1214   17f   17	1234 173 Royal Trusco A. 1236 1234 4.75 Sceptre Res. 778 68 5714 Seagram 6412 2012 1576 Shell Can Oli. 2013 3054 1614 Steel of Can. A. 1836 1015 4.70 Teck B. 7.75 2434 2172 Teck B. 7.75 1794 1794 1794 1795 1878 21 1794 1795 1878 21 1794 1795 1878 21 1795 1656 1794 1878 1878 1878 1878 1878 1878 1878 187	1.73	275 208 Mippon Suisan 255 4,600 3,800 KTV 3,950 318 215 Nippon Yusan 212 866 710 Nissen Motor 321 170 358 320 Nisshin Flour 321 170 139 Nisshin Steel 140 585 381 Nomura 995 1,140 735 Olympus 995 1,500 1,260 Orient Leasing 1,350 1,840 1,510 Pioneer 1,370 802 586 Renown 612 707 443 Ricoh 535 515 364 Sanyo Elect 369 275; 231 Sapporo 231
14. S	1714   3P	444	3954 3158 Lenox	2234 181s Pub. Serv. E & G. 2234 2444 205e Pub. S. Indiana 241s 351s 244e Purox 27 351s 244e Purox 27 320s 6 85 20 20 25 1354 85 20 20 20 20 20 20 20 20 20 20 20 20 20	878 6 Uniroyal 774 1119 619 Unit Brands 74 41 2256 Unt. Energy Res. 2434 4514 3519 US Fidelity 6 5514 3578 26 US Gypsum 3578 1059 8 US Home 1514 1059 8 US Home 998 3648 2219 US Shoe 998 3648 2219 US Shoe 1991 2514 1534 US Surgical 2134 50 4214 US Tobseco 47 4519 3178 Utd. Technolgs 4518 2134 1514 Utd. Technolgs 4518 2134 1514 Utd. Technolgs 4518	2276 1418 Walker(H) Res	10.45 6.50 BHP	798 c46:Sekisul Prefeb 646 890 c22.Sharp
19 F	477a 335a CSS 393a 393a 395a 395a 395a 395a 395a 395a	673   25g   Fisons 578   19   103s   Fisetwood Ent. 19   216s   153e   Fiext-wan 315g   365   233e   Fiorida Pwr & 3554   3534   3714   Ford Motor 3515   3714   2914   Foremost Mck. 321s   151s   97g   Foster Wheeler 103s   151s   97g   Foster Wheeler 103s   151s   321s   151s   321s	2934 9232 Lowenstein 2414 2312 1418 Lubrizol 16 1518 1236 Lucky Strz. 1418 2536 1214 M/A Com. Inc. 15 6714 3838 MCA. 5314 1666 1118 MacMillan 1314  3812 25 Mac. 2818 3859 2658 Mac. 2818 16 718 Marville Corp. 2818 3338 2114 Mapro. 2328 2318 Mapro. 2328 2318 Mapro. 2328	141 <sub>2</sub>   105 <sub>8</sub>   Redman Inds	5812   583e   Uplohn	GERMANY  1982 Aug. 20 Price Dm  46.9 23 AEG-Telef	4.40 0.14 Endeavour Res. 0.16 1.85 1.45 Gen Prop Trust. 1.48 6.90 1.75 Hartogen Energy 1.85 1.45 0.87 Hooker 2.89 1.90 1.38 iCl Aust. 2.38 1.35 1.03 Jennings 2.120 0.50 0.10 Jimb'lsna(50cFP 0.15 1.80 1.35 Jones (D) 1.40 0.44 0.10 Lennard Oll 0.15 3.45 2.41 Mil. 3.00 3.40 1.70 Meekatharra Ms 1.85 0.34 0.13 Meridian Olf 0.18 0.17 0.04 Menarch Pet 0.07	515: 400-Toklo Marine
	38 4 2715 Cented 2414 1656 1234 Central & Sw. 161s 1376 942 Central & Sw. 161s 1234 1054 Central & Sw. 1234 2176 1416 Central & Sw. 1234 2176 1417 Central & Sw. 1234 2176 1417 Central & Sw. 1234 2176 1417 Central Aircraft 1514 2176 12 Champ Hoff 1416 2184 678 Champ Sp Piug 81s 938 678 Champ Sp Piug 81s 938 678 Champ Sp Piug 81s 938 678 Champ Sp Piug 84 60 3312 Chambell NY 32 277 3076 Chembel NY 32 277 3076 Chembel NY 334	719 : 2978   Gannet	4018 3118 Marriott	4534 27:8 NICE ACCEPT 10:9 ACC	3714   2719   Washington Post   3714   2414   Washington Post   3714   2814   1918   Washington   2612   2612   1918   Weis Mixts   2612   2614   2778   1919   Weis Fargon   2158   2314   788   Western Airline   438   4314   2258   Western Holon   3712   300   2118   Western Holon   3712   300   2118   Western Holon   300   3	206.5 103.8 BAYER. 209.5	1.10	318 211Yasuda Fire
で ・ ・ ・ ・ ・ ・ ・ ・ ・ ・ ・ ・ ・ ・ ・ ・ ・ ・ ・	1976   11   Ohicago Pneum   1148   858   534   Chrysler   824   825   624   825	61s   354   Genesco   37s    3814   297s   Genuine Parts   5454   201s   135s   Georgia Pag   177s   301s   195e   Gerber Prod   201s   401   195e   Gerber Prod   4814   297s   125s   Giddings Lewis   40   3034   Gillette   40   35   7ss   Global Marine   85s   22   1634   Goodrich (8F)   1914   2514   181s   Goodyear Tire   24   2515   261s   Guid   231s   457s   2854   Grace   325s   41   3414   Granger (W. W)   381s	15	1934 144s Royal Crown 1714   3678 3879   4256 3476   19 1259   3514 2318   2214 1672 3FN Companies 2214 1672 3FN Companies 2214 1672 3FN Companies 2214 2712 5abine Corp 3514 2014 2015 3612 5afeco 3514 3512 3612 18 38 38 38 38 38 38 38 38 38 38 38 38 38	3014 1214 Wheeling Pitts 1276 3434 2518 White Consoltd 256 13518 1819 White Consoltd 256 13518 13 White Consoltd 256 1418 13518 1578 Winn-Dixle Str. 5678 2412 1758 Winn-Dixle Str. 5678 2412 1758 Winn-Dixle Str. 5678 2412 10 Winn-Dixle Str. 5678 2518 1178 Winn-Dixle Str. 5014 1578 1078 Yellow Frt Sys 1568 2518 1178 Zepata 12 Zenith Radio 10 34	165 141 DU Schult	0.87 0.22   Southland Shi 9 0.22   0.37 0.12   Spargos Expl	10.6 6.55 Barlow Rand 8.45 39.75   24.5 Buffels 39.75   2.8 4.95 CNA Invest 6.5   3.05 1.95 Curris Finance 2.3   2.5 3.97 De Beers 5.72   3.97 De Beers 5.72   3.97 De Beers 5.72   3.5 18.76 Orierontein 28.0   41 19.8 FS Geduid 35.5   3.5 6.20 Gold Fields 8.4   4.5 3.6   3.7 Highweld Steel 5.5   3.8 6 23 Kloof 5.7.25   6.45 4.85 Nedbank 6.45   2.15 1.450 OK Bazzars 18   3.7 1.85 Protes Hidgs 2.35   3.7 1.85 Protes Hidgs 13.0   5.75 3.3 Rennies 4.1   5.55 2.0 Sage Hidgs 2.45
*	Indic	ces			AUSTRIA 1982 Aug. 20 Price	74.5 51 Lufthansa 71 197 149 MAN 129.7 1880 201 iMercedes Hig 275.0 272 193.5 iMetaligasei 194.0 690 610 iMueuch Rueck 640 207.8 171.5 iPreussas 178	High   Low   5	5.15 3.75 SA Brews 4.50 22 15 Tiger Coats 19.25 9.6 5.5 Tongaat Huletts 7.25 4 2.95 Unisec 3.4
y fr er er	NEW YORK —DOW JON Aug Aug Aug 17 18	Aug. High Low High Low	Aug. Aug. Aug. Aug. Aug. Aug. Aug. Aug.		High   Low	176 160.5 Rhein West Elect 169.8 291 217 Rosenthal 220 295 255 Schering 269.0 250 198.2 Siemens 218.5 92.1 71.5 Thyssen 79.5 185 139.6 Verts 144	2.36 1.74 Incheape Bhd 1.89 7.7 4.94 Maiay Banking 5.25 5.35 4.44 Maiay Braw 4.44 12.7 6.75 OCSC 7.35 2.92 1.49 IsimeDarby 1.70 7.3 3.92 Straights Trdp 4.38	Financial Rand U.S.\$0.76 (Discount of 111%) BRAZIL
) ) ) () () ()	Al Industr' le 889.23 858.57 828.43 831.24 752. H'me Sinds 62.51 82.04 82.12 81.86 89. Transport. 524.94 514.82 318.02 314.52/339.	58-60.06 52,12 55.67 (18.69) (18.69) (18.25) 447.58 12.52 (18.68) 292.12 447.58 12.52 (18.68) (18.68) (18.77.52)	All Ord. (1/1/89) 454.0 456.1 488 Metal & Minis. (1/1/89) 565.2 569.8 56 AUSTRIA Credit Aktion (2/1/62) 48.58 48.42 48	1.7 460.8 585.5 (4/1) 445.2 (8/7) 1.4 249.8 425.1 (6/1) 299.0 (8/7) 1.52 48.50 58.95 (4/1) 48.42 (18/8)	178 140 Steyr Daimler	134.5 123.5 Veba 128.0 290 255 Vereih-West 269 153.4 129 Volkswagen 135.5	4.98 3.12 UOB 3.54  SWEDEN  1982 Aug. 20 Price	1982 Aug. 20 Price Cruz  1.95 1.52 Acesita
32 2	Trading Vol	(7/5) (\$8/7) (28/4/89) 28/4/42)	BELGIUM         85.14         (u)         84           Belgian SE (61/12/65)         85.14         (u)         84           DENMARK         Copenhagen SE (1/1/75)         115.53         116.78         115.78         115.78	.28 95.51 102.45 (5/4) \$4,42 (20/1) .95 112.44 124.22 (25/2) 169.0 (12/7)	1982 Aug. 20 Price High   Low Frs. 1,700   1,010 ARBED   1,042 4,100   5,900 Bank Int A Lux   4,100	•	High   Low   Kronor	8.15; 2.35.8rahma PP
為- - - 	indust'i div. yield % Aug. 13 7.08	Aug 5 July 30 Year ago (Approx 7,15 5.92 5.90	GERMANY  FAZ-Aktion (81/12/81) 218.91: 218.18 217	6.1 84.9 111.8 (12/6) 55.8 (12/6) 1.4 108.1, 124.8 (12/6) 97.7 (4/1) 22 214.88 229.45 (5/4) 214.86 (17/6)		FRANCE  1982 Aug. 20 Price High   Low Frn.	134: 88.5-Atlas Copco	TEL AVIV
21 61. 4 52	Aug. Aug. Aug Aug Au 20 19 18 17 16	100 SE 1 Z EO		.5 660.2 725.8 (5/4) 866.2 (17/8) 1.2 84.8 85.0 (18/b) 24.8 (8/1) 1.4 88.9 74.8 (10/5) 85.2 (4/1)	2,720 2,180 G.B. Inno 2,510 1,720 1,200 GBL (Brux) 1,358 1,950 1,490 Gevaert 1,730 3,750 2,550 Hoboken 3,250 1,570 1,298 Intercom 1,400 5,130 4,000 Kredietbank 4,130	2.000 1,636 Emprunt 42,1975.1,780 7,110 5,490 Emprunt 82,1973,7,110 3,287: 2,570 CNE 38	241 167-Sandvik B (Free) 167 580 440 Skandia 525	Company Aug 15 on the 1982 week Banking, Insurance and Finance Bank Leumi le Israel 1,890 + 50 IDB Bankholding 2,715 + 81
(1) (2) (3)	- Comp's'te, 113.02 109.35 109.55 109.54 104	.es 185.85 122.74 182.42 148.52 4.47) (4/1) (12/8) 128/11/80(1/6/22) (4/1) Aug. 4 Year ago (approx 6.28 5.08 4.85	HONG KONG Hang Sang Bank (51/7/94 1054,68 1025,55 1041 ITALY Banca Comm Ital. (1972) 175,65 175,01 165		6,150 5,500   Pan Hidgs	550   580   BiC	260; 191;Skan Enskilda 217 164; 108;SKF 8	Bank Happelim Br 2.254 + 66 Union Bank of Israel Br. 1.750 + 45 United Mizrahl Bank 1,167 + 25 Hassneh Insurance Br 1,280 + 120 Leurni Mort. Bank Br. 895 + 45 "Telahot" Isri Mr. 8k Sr. 3,415 - 135
	Indust't P/E ratio 7,58	7.14 7.40 9.33 13.11 13.04 13.67	Tekyo New SE (4/1/88)   518.11   518.54   518 NORWAY		3,950	620   506   GFAO 531 260   127   CFS (Thomson) 139.5	SWITZERLAND 1982 Aug. 20 Price	Danot S/O Is
(1) (1) (1)		Rises and Falls Aug 20 Aug 19 Aug 18 Issues Traded 1.945 1,975 Rises 1,582 782 1,836 Rises 273 714 486	ACCURATE AFRICA	.16 581,65 810,78 (\$/1) 567,07 (16/8)	DENIMARK	94 : .49.6(reuset Loire 75 141 97.5(FP 93.7 53 56.1 DNEL 1,10 1,650 978 Dumez 1,110 438 350 Gan. Occidental 370	575 380 Atusulssa	Public Utility Super-Sci "A"
,31 25 375 479 277	84,8562,57,98,3262,41, 71,20 58,80 (4/1) (12/8)	Unchanged 288 422 203 New Highs 21 39 49 208 New Lows 21 22 10	Gold (1959) — 511,0 518 Industrial (1959) — 588,6 565	5 484.1 569.5 (5/1) 555.5 (6/7) 679.7 711.7 (8/1) 567.5 (29/6) 92 88.95 107.45 (8/2) 88.61 (18/7)	1982 Aug. 20 Price %  129 115.2 Andelsbanken	287 181.8 Lafarge	2,315 2,190/Elektrowatt 2,226 520 380/Fisher (Geo) 380 63,500/53,750/Moff-Roche Pt Cts 57,500 6,325 6,375/Hoff-Roche 1/10, 5,775	Commercial and Industrial Dead Sea Works 2,890 '+250 Dead Sea Works 2,890 '+250 Polgat ''B'' 2,640 +170 Accampa Tartilla Rr 2,022 -170
142 277 187 187 207	Aug. Aug. Aug. 20 19 18   Aug. 20 19 18   Aug. Aug. Aug. Aug. 20 19 18   Aug. 20 18   Aug. 2	86 268.18 552.79 (4.1) 249.88 (21/5) 71: 247.34 518.88 (4.1) 237.27 (21/5)	SWEDEN Jacobson & P. (1/1/63)   615.59   617.31   617   617.31   6		145.2 86 East Asiatic	1,155   1,155	3,395 3,070 Nestle	Teva Reg Ex. 1,666
20 20 20	NEW YORK AC Change.  Friday Stocks Closing on	TIVE STOCKS  Change Stocks Closing on Inaded "Price day	WORLD Capital Intl. (1/1/8) — 125,1   125  (**) Saturday Aug 14: Japan Base values of all indices are 100 ext	Dow 6954.37. TSE 516.97.	191 170 jydske Bank, 175 158 130 kerd Kabel 156 1817 1400 klove Ind. 1,870 95 74 Papirfabrikker 77 150 122.2 Privatbanken 122.4 130.2: 115 Provinsbanken 119	219 95 Poglain	290 236 Schindler (PtCts) 256 750 610.Swissalr 624 325 270.Swiss Bank 275 600 5,500 Swiss Reinsce 5,075 1,030 650 Swiss Volksbk 980	NOTES - Prices on this page are as
\$E	Seem Resbuck 1,784,100 22 +12 Cities Service 1,850,100 455 +3 Per Ges. Heat 1,814,700 27 +12	Exten	Base values of all indices are 100 ext. 600. NYSE All Common—60: Standard a last named based on 1975. † Excluding industrials plus 40 Utilities, 40 Finan is Unaveilable.	nd Poors—10; and Toronto—1,000; the g bonds. \$ 400 industrials. \$ 400 clais and 20 Transports. c Closed	272 167 Smidth (FL)	1,155 658 (Telemach Elect.) 700 248.9 159 (Valeo	A AFRICAL DATE	end are last traded prices. \$ Deslings auspended, ad Ex dividend, an Ex scrip issue, at Ex rights, as Ex sil.
		1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		· ·	<u>.</u>		•	

# delicate shade of amber

"THAT'S A long time in this market," commented a senior market," commented a senior manager at one of the discount bouses when asked his thoughts responsible for the amazing ket sentiment the authorities from the banks. on the possibility of bank base change in sentiment in the refused to cut its dealing rates lar mind when it put the brakes and money markets do seem to to part with their high yielding possible around the middle of on the sharp fall in London be placing a great deal of faith pap interest rates last Wednesday, in the predictions of one man at nes Another dealer suggested that it the moment was not a red light from the It is true authorities, but more a delicate shade of amber. There was little the long expected fail to 11 per doubt however that in lending money to the discount houses for seven days at a rate 1 per Federal Reserve discount rate, for seven days at a rate 1 per Federal Reserve discount rate, cent above base rates the Bank but it was Dr Kaufmann who of England was giving some sort seemed to supply the catalyst

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Eut 1 vear : 1982

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into cultu and ( of restraining signal.

The way the markets in New York and London had been going single figure lending rates looked to be approaching before the end of August, but this was clearly not a sustainable trend.

Seemed to supply the catalyst producing the very strong reaction on both sides of the Atlantic.

As rates plunged we saw once again the familiar sight of a stand off between the Bank of England and the discount houses

It is true that interest rates were already moving down, with

BANK OF ENGLAND TREASURY BILL TENDER									
Aug 20	Aug. 13	i l	Aug. 20	Aug 15					
Bills on offer; £100m Total of applications, £491.16m		Top accepted rate of discount		10.7294%					
Total allocated £100m Minimum accepted bld £97,505	£100m	rate of discount	9,9894% 10,25%	10.7110% 11,00%					
Allotment at minimum level .   100%	122	Amount on offer at next tender.	£100m	£100m					

### FT LONDON INTERBANK FIXING

3 months	U.S. dollars
bid 10 5/18	offer 107/18
6 months (	J.S. dollars
bid 111/4	offer 11 5/8

The fixing rates (Aug 20) are the anthster Sank, Bank of Tokyo,

from the banks.

Although the houses are probrates falling into single figures equity markets—is far less after the fall in base rates, but Although the houses are probby late October. The Bank of fallible than most other economic the houses now looking for furably resigned to a rather more England obviously was of simi- forecasters, because the equity ther interest rate cuts refused gentle fall in rates than seemed

sday mor	niaz the	Bank	ed-the we of still s ily autumi	ek, single ng seem likely, n.	by the l
VEEKLY	CHANG	EIN	WORLD	INTERES	T RATE
	1		ļ		

			,		
· Annali '	Aug. 20	change		Aug. 20	change
LONDON Base rates 7 des rates 3 mth interbank Treasury Bill Tender	11 111 <sub>9</sub> -117 <sub>8</sub> 107-10 <del>13</del> 9.9894	-1 <sub>2</sub> -1 <sub>8</sub> -3 -0 7918		114 1834-9 16.72 18,32	-1 -11 <sub>9</sub> -3.48 -1.95
Band 1 Bills Band 2 Bills	114 11	-14	3 Mth. CD	9,70	-1.5
Band & Bris Band & Blis 3 Mth. Treasury Bills 1 Mth. Bank Bills 8 Mth. Bank Bills	1078 1018-104 1078 1018-102	_14 _2 _5	One Mth. Interbank Three month	9.0 6.70 8,60	Unch'd -0.60 -0.725
TOKYO One month Bills Three month Bills	7.40625 7.34375	Unch'd Unch'd		141 <sub>1</sub> 14.2 14.3	Unch'd Unch'd Unch'd
BRUSSELS One month Three month	13.4 18.4 18.4	i2	MILAN · One month Three month	19.4 19.4	Unch d Unch d
AMSTERDAM One month	83g	-18	DUBLIN One month	1734 1736	_ <del>[</del> _

London-band 1 bills mature in up to 14 days, band 2 bills 15 to 33 days, and band 3 bills 34 to 63 days. Ratus quoted represent Bank of England buying or selling rates with the money market. In other centres rates are generally deposit rates in the domestic money market and their respective changes during the

### LONDON MONEY RATES

Aug. 20 1982	Sterling Certificate of deposit		Local Authority deposits	Local Auth. negotiable bonds	House	Company Deposits		Treasury	Eligible Bank Bills &	Fine Trade Bills #
Overnight,		111g-13	113, 12	<u> </u>		113, 12	1012-1114		- '	_
2 days notice	í <del></del> 1	{ <u> </u>	114-115	; <del>-</del> i	_	: — i	; ;			_
7 days of		. – :	_	) i		ا ا	ا -جا	- 1	- 1	_
7 days notice	: - :	1142-117a	114-114	: -	_	1134-12	: 11-111 <sub>8</sub>			_
One month	11-6-11-6	11 a-11 m	111g	1115-114	113	1112	103	10 Tg-11	1075 .	114
Two months	10 x 10 x	10-11-		1111-11 i	10if	11-114	1016	10%-10h	10 ½-101 <sub>3</sub>	11.5
Three months.		10 % 10 i .	1032	107g-105g	10%	11 .	10	1018-1014	101 <sub>8</sub> -10 <sub>12</sub>	105
Six months	1014-1018	1012-1012	101 <sub>2</sub>	914.912	103a	l – .	<b></b> .	_ ,	914.95	10%
Nine months	10 ta 10 ta 1	101- 10-x 1		10% 104	1031	- '		- :	!	_
One year	1014-101a	1012-1012	101g	101 <sub>2</sub> -101 <sub>8</sub>	1034	l – :	-	_	- 1	_
Two years		_ :	11	! <del>-</del> `.}		!	<del></del>	/		
	يسمعين وسبب				فترجك المعين تهيلا					

ECGD Fixed Rate Sterling Export Finance. Scheme IV Averaged Reference Rate for investment period 18 July to 3 August 1982 (inclusive): 12.143 per cent.

Local authorities and finance houses seven days notice, others seven days fixed Long-term local authority mortgage rates, nominally three years 11½ per cent; tour years 11½ per cent; five years 11½ per cent. & Benk bill rates in table are buying rates for prime paper. Buying rates for four month bank bills 32½ per cent; four months trade bills 10½ per cent Approximate selling rate for one month Treasury bills 10½-10½ per cent; two months 10½-10½ per cent and three months 9½-10 per cent; one month trade bills 11 per cent; two months 10½ per cent; three months 10½ per cent.

Finance Houses Base Rates (published by the Finance Houses Association) 13 per cent from August 1. 1932. London and Scottish Clearing Bank Base Rates for lending 11 per cent London Clearing Bank Deposit Rates for sums at seven days notice 8 per cent. Treasury Bills; Average tender rates of discount 9.3934 per cent. Certificates of Tax Deposit (Series 5) 11 per cent from August 18. Deposits withdrawn for cash 9 per cent.

### **EURO-CURRENCY INTEREST RATES (Market closing rates)**

Aug. 20	Starling	U.S. Dollar	Ganadian Dollar	Dutch Guilder	Swiss Franc	D-mark	French Franc	Italian Lira	Belgia Conv.	Franc Fla.	Yen	Danish Krone
Short term	1119-1154 1136 1158 1116-1114 1058-1054 1058-1054 1076-1074	9.914 914.91g 915.915 1019-1035 1112 1138 1173-1213	1415 14%	8% 8% 8% 8% 8% 8% 8% 8% 8% 8%	1 112 1-112 319 314 4 412 4 413 4 414 4 415	814 812 85 85 85 85 85 85 85 85 812 85	141 <sub>2</sub> -161 <sub>2</sub> 141 <sub>2</sub> -161 <sub>2</sub> 151 <sub>2</sub> -161 <sub>2</sub> 181 <sub>2</sub> -191 <sub>4</sub> 181 <sub>2</sub> -191 <sub>4</sub>	18-20 197: 2178 20-21 197: 805: 201: 21 301: 21:4	15-14 15-14 1514-14 1514-14 1514-14 1514-14	151;-14 153;-153; 133;-133; 153;-133; 151;-153;	678-71: 71:475: 7:475: 7:471: 7:671: 71:77: 7:4-77:	125g-141g 123g-137g 151g-15 151g-165g 16-171g

SDR linked deposits: one month 10-10<sup>3</sup>s per cent; three months 10<sup>3</sup>s-10<sup>3</sup>s per cent; six months 10<sup>3</sup>s-11<sup>3</sup>s per cent; one year 11<sup>3</sup>s-11<sup>3</sup>s per cent.

ECU linked deposits: one month 11<sup>3</sup>s-12<sup>3</sup>s per cent; three months 11<sup>3</sup>s-12<sup>3</sup>s per cent; six months 11<sup>3</sup>s-12<sup>3</sup>s per cent; one year 12<sup>3</sup>s-12<sup>3</sup>s per cent.

Asian 5 (close rates in Singepore: one month 9<sup>3</sup>s-10<sup>3</sup>s per cent; three months 10<sup>3</sup>s-10<sup>3</sup>s per cent; six months 11<sup>3</sup>s-11<sup>3</sup>s per cent; one year 12-12<sup>3</sup>s per cent.

Long-term Eurodollar; two years 13<sup>3</sup>s-13<sup>3</sup>s per cent; three years 13<sup>3</sup>s-13<sup>3</sup>s per cent; have years 13<sup>3</sup>s-14 per cent; nominal closing rates.

Short-term rates are call for U.S. dellars. Canadian dollars and Japanese year: others two days' notice.

The following rates were quoted for London dollar certificates of deposit; one month 9.80-9.90 per cent; three months 10.10-10.20 per cent; six months 10.75-10.85 per cent; one year 11.40-11.50 per cent.

### **CURRENCIES AND GOLD**

# Dollar very weak

The dollar fell sharply last on Bank of England figures, fell week in reaction to lower U.S. to 120.2 from 122.4 during the interest rates. The trend began week, and in terms of major on the previous Friday when the currencies the U.S. unit weakened Federal Reserve cut its discount to DM 2.4530 from DM 2.5075 rate, but this was not followed against the D-mark: to FFr 6.85 through on Monday in the from FFr 6.99 against the French foreign exchange market. A franc; to SwFr 2.0730 from general reluctance to part with SwFr 2.1425 against the Swiss dollars may have reflected the franc; and to Y254.75 from Y262 currency's recent resilience against the Japanese yen.
despite the downward trend in Sterling's index rose to 91.5

Eurodollar rates fell by about pound benefitted from the move 1 percentage point on Monday, out of the dollar, and fears that and on Tuesday and Wednesday Continental rates are also set lost more than another point, to fall. The pound rose to bringing the dollar tumbling DM 4.2725 from DM 4.27 and

down in their wake.
Dr Henry Kaufman of Salomon Brothers gave interest SwFr 3.65 and to Y444 from rates and the dollar a sharp downward push as a result of his predictions of lower long larly weak, requiring the support term bond yields, and although of higher Euro French franc Eurodollar rates did turn up slightly by the end of the week the dollar continued to slide.

Three-month Eurodollars finished on Friday at 101 per cent compared with 122 per cent at the end of the previous week.

and 101 per cent on Wednesday.

Gold came back into favour.

Sold came back into favour.

dollar fell. It mse \$452 on the and 101 per cent on Wednesday. dollar fell. It mee The dollar's trade-weighted index, week to \$3833-3843.

**GOLD MARKETS** 

interest rates including cuts in from 90.9. despite the lower-bank prime lending rates. trend in interest rates, as the to FFr 11.9250 from FFr 11.90 but fell to SwFr 3.61 from

> larly weak, requiring the support of higher Euro French francinterest rates, in contrast to the general trend. Rumours of with-drawal from the European Monetary System were behind the franc's decline.

### THE DOLLAR SPOT AND FORWARD

	Aug 20	Day's apread	Close	One month	p.a.	months	p.a.
	UKt	1.7380-1.7500	1.7405-1.7415	0.22-0.12c pm		0.18-0.05 pm	
	Itelandt	1.3990-1.4050	1.4025-1.4045	0.90-0 20c pm		2.35-2.20 pm	
	Canada	1.2350-1,2370	1.2360-1.2370	0.50-0.55c dis		1,14-1.21dis	
	Nethind.	2.6950-2,7020	2,6965-2,6986	0 32-0.22c pm		1.14-1.04 pm	
	Belgrum	47.03-47.17	47.13-47.15	14-16c dis		34-39 dia	-3.10
L	Denmark	8,5475-8,5745	8.5476-8.5577	11-12 ore dis		5.65-6.15dis	- 2.76
•	W. Ger.	2,4400-2,4590	2.4525-2.4535	0 30-0.25pf pm		1.21-1.16 pm	
-	Portugal	24,70-88,00	85.75-86,00	75-175c dis			- 13.97
,	Spain	110.60-110.95	110.50-110.70	65-75c dis		190-215 dis	-7.41
:	Italy	1,379-1,3851-	1,384:1,3851;	12-13lire dis		32-34 dıs	-9.53
•	Norway	6,6200-6,6440	6.6200-6.5300	1,70-2.10ore dis		6.80-7.20dis	-4.27
į	France	5.8450-6.8800	6.8475-6.8525	4-ಫ್ಡೇ dis		741,-16 dis	- B,88
1	Sweden	6.1000-6,1140	6.1000-6.1100	2,20-2,40ors dis		5.20-6.40dis	-3.47
	Jepan	254.50-256.25	254.70-254.90	0,65-0.57y pm		1.95-1.95 pm	
•	Austra 1	7.223-17-263	17,25-17,28	3½-2gro pm		84-54 pm	1.55
	Switz.	2.0670-2.0840	2.0725-2.0735	1.16-1.06c pm	6.48	3.28-3,20 pm	6,25
				_		_	

### Beigien rate is for convertible francs. Financial franc 49.85-49 35. THE POUND SPOT AND FORWARD

Aug 20	spread .	Close	One month	p.a. months	p.8
ū.s.	1,7380-1,7500	1.7405-1.7415	0,22-0.12c pm		0.3
Canada	2.1500-2.1600	2.1525-2.1535	0.68-0.78c dia	~4.07 1.85-1.96dis —	3.5
Nethind.	4.69-4.7212	4,69 <sup>1</sup> ,-4.70 <sup>1</sup> 7	14-4c pm	2.55 2½-2 pm	1.9
Belgium	81,50-82,30	82.00-82.10	17-27c d/s	~3.22 54-64 dis —	2.8
Denmark	14.89-14.95	14.89-14.91	1-17 ore dis	~ 1,11 8½-9½ dis —	2.4
Ireland	1.2400-1.2470	1.2405-1.2415	0.57-0.72p dis	~6.24 1.87-2,06dis <i>—</i>	6.3
W. Ger.	4,26-4.291	4.26%-4.27%	14-4pf pm	2.46 2½-2½ pm	2.2
Portugal	149.00-150.00	149.25-149,75	110-295c dis	-16.25 245-780dis -1	3.7
Spain	192.50-193.75	192.50-192.75	100-125c dis	→7.01 350-396 dls —	7.7
Italy	2.408-2.417	2.410-2.412	18-21lire dia	· ~9.70 5572-5912 dis -:	9.5
Norway	11.53-11.59	11,537-11.557	11-22ore dis	~2.14 104-12 dis -	3.9
France	11,92-12,02	11.92-11.93	5-Sc dia	~6,54 21-25 dis -	7,8
Sweden	10.622-10.6812	10.631,-10.551,	21-35 ore die		3.0
Japan	442-447	4431, 4441,	1.55-1.35y pm	3.92 3.65-3.45 pm	3.2
Austria	30.00-30.20	30.00-30.05	81-5gro pm	2.70 171-11 pm	1.9
Switz.	3.60-3.64	3,6012-3,6117	23-21c pm	7.89 64-5½ pm	6.8
			francs Financii	el franc 86.80-86.90. onth 2.15-2.30c dis.	

### FORWARD RATES AGAINST STERLING

	Spot .	1 ಗಾಂಗಭಿ	3 month	रू कालगरी	12 month
Dollar	1.7410	1.7393	1.7397	1.7460	1.7635
D-Mark	4.2725	4,26355	4.24875	4.2296	4.18945
French Franc	11.9250	11,99	12.16	12.44	_
Swiss Franc	3.61	3.58625	3.55	3.511	3.42
Japenese Yen	444 .	442.55	440,45	437.17	431.49
	<del></del>				

### EMS EUROPEAN CURRENCY UNIT RATES

	ECU central rates	amounts against ECU August 20	trom central rate	% change adjusted for divergence	Divergen limit %
Belgien Franc	44,9704	45,2696	+0.67	+0.55	+1,5501
Danish Krone	8.23400	8.22587	-0.10	-0.22	±1.6430
German D-Mark	2.33379	2.35751	+1.02	+0.90	₹1.0888
Franch Franc	8.61387	6,59711	-0.25	-0.37	+1.3940
Dutch Guilder	2,57971	2,59307	+0.52	+8.40	±1.5004
Irish Punt	0.691011	0.685119	-0.85	-0.97	-1,6691
Italian Lira	1350.27	1328.44	-1.62	-1.62	≟4.1369
Свалда	s are for i	ECU. therefore	positive cl	unge denotes	

weak currency. Adjustment calculated by Financial Times.

### OTHER CURRENCIES

		1	I	.₹
Aug 20	£	į .	<b>i</b> I	Note Rates
Argentina Peso Australia Dollar	41,0761	23,5601	Austria	50.00-50.30 86.35-87,25
Brazil Cruzelro Finland Markka	339,77-330,77	188,96-189,90	Denmark	14.88-15.02 11.94-12.04
Greek Drachma Hong Kong Dollar	118.620-122.201	68,80-69,30 5,9850 5,9950	Germany	4,2614.4.3014
iranklai KuwaitDinar(KD)	0.504-0.505	0,29000-0,29015	Japan Nethorlands	4.6812-4.7212
Luxembourg Fr Malaysia Dollar	4.0505-4.0605	3.3305-2.3350	Norway Portugal	11,53-11,68 1443 <sub>4</sub> -161 1883 <sub>4</sub> -1991 <sub>2</sub>
New Zealand Dir. Saudi Arab. Riyali	2,5770-2,5790 <b>5,9840</b> -5,9991	3,4390-3,4410	Spain Sweden	10.63-10.73 3,614-3,654
Singapore Dollar Sth.African Rand	3,72-0,75- 1,9865-1,9890	1.1410-1.1425	Switzerland United States Yugoslavia	1.73-1.75 105.111
U.A.E. Dirham!	0.0010-0.5950	9-01-0-0-0130	INACAGLIGATION	

Gold Bullion (fine ounce)

\$39414.395 (£22514.32654) |Xing Sov. \$93.95 (£53.54) \$20312.20412 (£1551.41) |Xing Sov. \$93.95 (£53.54) \$10312.10412 (£5914.60) | French 20s \$82.9414 (£47.4814) \$42.43 (£23614.32654) | 50 pass Mex. \$45214.4914(£29514.28614) \$392.93 (£5254.5314) | 392.93 (£5254.5314) | 380 Eagles \$410.420 (£23614.241)

# weighted changes fro

CURRENCY	MOVE	MENTS	CUR	REN	CY RA	TE5
Aug. 20	England	Morgan Guaranty Changes?	August 20	rate	Special Drawing Rights 0,626345	Units
Sterling U.S. dollar Cenadien dellar Austrian schilling Belgian franc Deutsche mark Swiss franc Guilder French franc Lira Yen Bassed on trade wal	120,2 89.0 118.0 94.7 82.0 125.4 147.0 116.9 73.8 53.5	-32.0 +10.9 -18.2 +25.7 -2.1 -2.1 -49.2 +24.1 -20.3 -58.5 +26.5	U.S. S Canadian S. Austria Sch. Belglan F Danish Kr D mark Guilder French F Lira Yen Norwgn. Kr. Spanish Pts. Swedish Kr. Swedish Kr. Swedish Kr.	1012 14.26 634 13 712 814 15 15 15 12 10	18,8442 51,5073 9,34512 2,68236 2,94983 7,49948 1511,49 278,389 7,24465 121,048 6,67041 2,27187	1.18582 16.5611 45.2696 8.22587 2.59507 6.59717 1328.44 246.442 6.36490 10.362 5.86500 1.99674
Washington agreem	est Deces	nber 1971.	Greek Dr'ch			66.6859 : 1.34824.

Aug. 20	Pound Strling	U.S. Dollar	Deutschem'k	Japanese Yen	FrenchFranc	Swiss Franc	Dutch Guild	italian Lira	Canada Dollar	Belgian Franc
Pound Sterling	0,574	1.741	4,273	444.0	11.925	3,610	4.700	2411.	2.153	82.05
U.S. Dollar		1.	2,454	255,0	6.850	3,074	2.700	1385,	1.237	47,13
Deutschemark	0.834	0,407	1.	103.9	2,791	0,845	1.100	564,0	0.504	19.20
Japanese Yen 1.000	2.253	5,921	9.623	1000.	26,86	8,131	10.59	5433.	4.849	184.8
French Franc 10	0,889	1.460	ā,583	372,3	10,	5.087	3,941	2032.	1,805	68,81
Swiss Franc	0,277	0.482	1.184	123.0	3,305	1.	1,302	567,9	0,596	22,73
Dutch Guilder	0.213	0,370	0.909	94,47	2,537	0,768	1,949	513,0	0.458	17,46
Italian Lira 1,000	0.415	0,722	1.772	184,2	4,948	1,497		1000.	0.893	84.03
Cenadian Dollar	0.454	0.809	1.984	306.3	5,539	1,677	2.183	1120.	1.	38.11
Belgian Franc 100	1.219	2,122	5.207	541.1	14,53	4,400	5.728	2936.	2.634	190

=	FT	U	TIV	T	RUST	INF	ORMA'	TION	SERV	/ICE
A	Abbey Unit	Tst. Magn archyard EC	4P4DX (1-296		AUTE	IORIS	ED TRU	STS	Ridgeffeld Manageme 1 Freton St., EC2A 190 Income IIT	m List. 91-168: 1017 +27
	Grit & Fland In High Inc Essity Capital Greath American Grow			=	raigmount Unit Tat.	Mers. Ltd.	L & C Unit Trest Me	magement Ltd c Et2n 1NA 500 2800		
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ń. ht	Worldwide Band How Tot Fa Equitas Prog	707 B 54 0 71 8	215) -02 584G -02 99.2 -06	464 <sup>64</sup>	Weekly dealing da	425-4-02 117 Wednesday	5 Shryleigh Rd., Brentwood Equaty Dis 104 1 Equity Acc 153 0	02// 21/27	Rethacidal James Man 72-80, Catchings Rd. Agin N.C. Engs Res Tet	magnetic (s) (g) design (TPA)
le h.	AHR Gult Trust	1105 S 400u EC3A 3	101 7EN -E.M		rescent Unit Tst. Min Helville Cres., Edinburch 3 es American	031-226 349	Leaning Administration 2, St. May Ave, EG3A 88P.	e Ltd.	Recite child Acces Man 72-80, Catalogue Rd., Agia 16 C. Europ Rep Tet	41
re	Allied Hambe Hambro Hse Brentweed (02: Balanced Fund	Hunton, Bran 17) 2(1459	4 224123		es American 155.6 ri. Contal	2011 100 100 100 100 100 100 100 100 100	Les Distribution	Miners, Ltd. (4)	Renger Unit Treat Me City Gate Her. Fleshow Se.	652 <i>6</i> 14662
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;	i i namena Kististi			36	scretionary Unit Fun 38 New Broad St. EC2M ; c. Inc. Aug. 13 1274.9	INU Õ1-638 4499	Do. (Accum.)	36 148 -0.2 3.44 57 4 -0.2 3.44 70.11 +0.3 8.71 10.77 +0.3 1.40 10.47 +0.3 4.00 10.43 +0.9 4.00	Royal Life Fd. Mignit. New Halt Plate, Libergraft L	. UK 49315 QSI 2074
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ď	Carrier Sanda		27 9 +0 8 66 8 +0 1 86 7 +0 2 72 1 +0 2	{	He Winchester 22.2 Windhester (Tiess 23.4 Lity & Law Un. Tr. ersham Rd., High Wycomb	24.8	Do (Accum.)	124 9 +0.21 2.24 Mnars, Ltd.	Capital Fund 1937 Income Fund 194 Prices on Any 35 Next Save & Prospets Groun	
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اة	Anderson Uni 52, Lendon Wall, Anderson U.T	t Trust M EC2R 700	lanagers Ltd. 01-638 : 70 6  .	1300 8	leilty international New Wall, Tonbridge, Kent erican (2) 137 4		M & G Group (y)(c)(z) Three Chang, Tower HIB, EC3	) IR 68901-626-5588	Increasing bycasts Funds (1974) leid (1974	42-44
	Anshacher Ut 1, Noble 51 , ECZ Inc. Monthly Fun Lacs &Gen.Ed	¥ 7.JΔ	Co. Ltd. 01-236 ( 170 077	1161 Go 126 Jan 127 Jan	erican (2)	313 +0.1 731 213 +0.1 731 313 +0.5 735	American Recovery 80.5 (Acosm, Units) 34 2 Australian 54 0 (Acosm, Units) 57 5	214 - 14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Nigh Return	
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	(10%, windraus Eastern & Interna (5%, Withdrawal) Fisance & Proper Foreign	25 9 27 1 125 4	사실 가기 :	AMA AM	London Wall, ECZM 5NQ. Pr. & Gen	01-628 5181 9184 -10 114 924 -10 114 864 -08 185 878 -04 185 759 - 450	(Accam. Units) 236 6 (Accam. Units) 437.7 Gilt Income (Accum. Units) 62.7 High Income 117.8		E senial Pools Existing Income*	201.01 1 32.4 1 10 to August 2
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ļ	Stration Trust Do. Accum Next sub. day Bishopstyate Pr Stock Exchange, U	rogressive	Mgmt. Co.	16 25t. Desili Amer Austr Sen Beitis	Mary Ame, EC3A 88P as only: 01-623 5766/31 sizen Trust: 15.9 sizen Trust: 15.9 sizen Trust: 105.9 sizen Trust: 100.8 sizen: 100.8 sizen	01-623-6114 806 36.4 -0.5 0.47 16.8 -0.1 2.33 118.2-4 -0.7 3.29	Mercusy Fund Manageri 30. Gresham St., EC2P 2E8.	53.51 -0.41 6.07 s. Ltd. o2.400.4559	SIMCO Money Funds bb. Carnor Street, ECAN 6AI SIMCO Call Funds	=     ±
	B'gste Prog Aug 10 Acc Units Aug 10. B'gste lat Aug 17. Accum Aug 17. Becoma Aug 18 Can & For Aug 19.	)[7] 	200   3 200   3 200		h Tsl. (Dist.)	1826 - 407 329 1826 - 407 329 1826 - 408 329	Gen Drst	98 9 + 3.71 3-92 146 9 + 1.72 3-27 43 07 + 0.72 6-73 82 07 - 1.11 2-94	Stewart Unit Tat. Man	agers Lid.(a)
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ľ	Amer. Gen.†  Income* Capital Inc. Do. Acc. Exempts	<u>[3] 2</u> [5] 3	357m +0.2 7	S India	19. (Acc.) 47.8 19. (Det.) 47.0 1 Trust 27 8 al Sus. Tst. 40 7 n. Ca. Rec. Trust 29.5	경험 다양 나왔	Midiand Bank Group Unit Trust Managers Li Courtened House, Salver Stra Sheffield, SI 3RD		Sen Altance Fund Nam	nagement Ltd.,
	ini. Recovery inc.; Do. Acc.; Deasing "Tues. #We	21.2 23.9 4 17han 19	nces Aug. 17/18/	r= 7 <i>1</i> L9	ett (John) seten Wall, EC2	01-588 5620	Sheffield, \$1 34(0)     Capital	10711 +0.d 3 02	Sun Attende Vist., Northern Econty Ace 11	_
	Britannia Gp. of Salisbury House, 31 UL-638 0478:0474 UK Specialist Fin	L, Firmbury Cl 7 or CJ-568 eds	nes 1,141, (a)(c)( hros., London EC2 2777	Gr <del>le</del> v	holders Aug 13.768 0 Stam. Unit	ie. Lid.	Esit & Fact. Inc	515 +10 10.00 629 +1.7 10.00 71.7 +0.5 7.69 76.4 +0.6 7.69	9-12 Cheapside, Landon, EC2 Ensity Dist. 9	U.S.A. CL THE TO
] {	Assets	}}8,5	127.81 -0.21 41 360 -0.31 21 55.851 -0.21 31	Si Barri	esham Street, EC2P 20S rygon Apy 18 3629 3 m, Units)	475	Do. Acc. 93 h Japan and Pacific 61.4 Do. Acc. 63.1	70.24 +0.6 6.22 101.11 +0.9 6.22 16.7 +0.3 0.49 68.0 +0.3 0.99	Fixed Int. Acc 7 Elia 22 *Prices on Aug 21. Next †Prices on Aug 4. Next	dealing Sept. &

Guardian Royal Ex. Unit Mgrs. Ltd. Royal Exchange, ECSP 3DN 01-628 8011 on Administration (a) (b) (c)

HK Unit Trust Managers Ltd. (2) 3 Frederick's PI., Old Jewry, EC2 - 01-50 Trace of any 40. rest position sign in 5763, Princers St., Manchester 061-236 5665 Carr, Schap (nr. Fd. 1314 33.4 442.2 8.00 Carr Schap rar Entin 121.6 22.7] -0.6 1.88 1 investment Bank of Ireland (a) Premier UT Admin, 5 Rayleigh Road, H Brentwood, Essex Boll Brit & O'seas (52.9 %) Procs August 28. Next sals, day August

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77 London Wall, EC2N 1DB. 01-588
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intel Sentil Co's Fi. [107.0 II.4.4 + 0.5] 3.40 Holborn Bars, EC.IN 2NH.

Key Fund Managers Ltd. (a)(g) Production [18.0 195.5]

1/3, Worship St., EC.2A 2.8h

1/4, Sept. [15.9 1.4.56 56.2]

Key Equity & Gen. [15.9 1.4.56 56.2]

Key Friend Fd. [15.9 1.4.56 56.2]

Key Friend In. Fd. [17.4 1.4.6]

Key Small Co's Fd. [17.4 1.4.6]

Management Co's Fd. [17.4 1.4.6]

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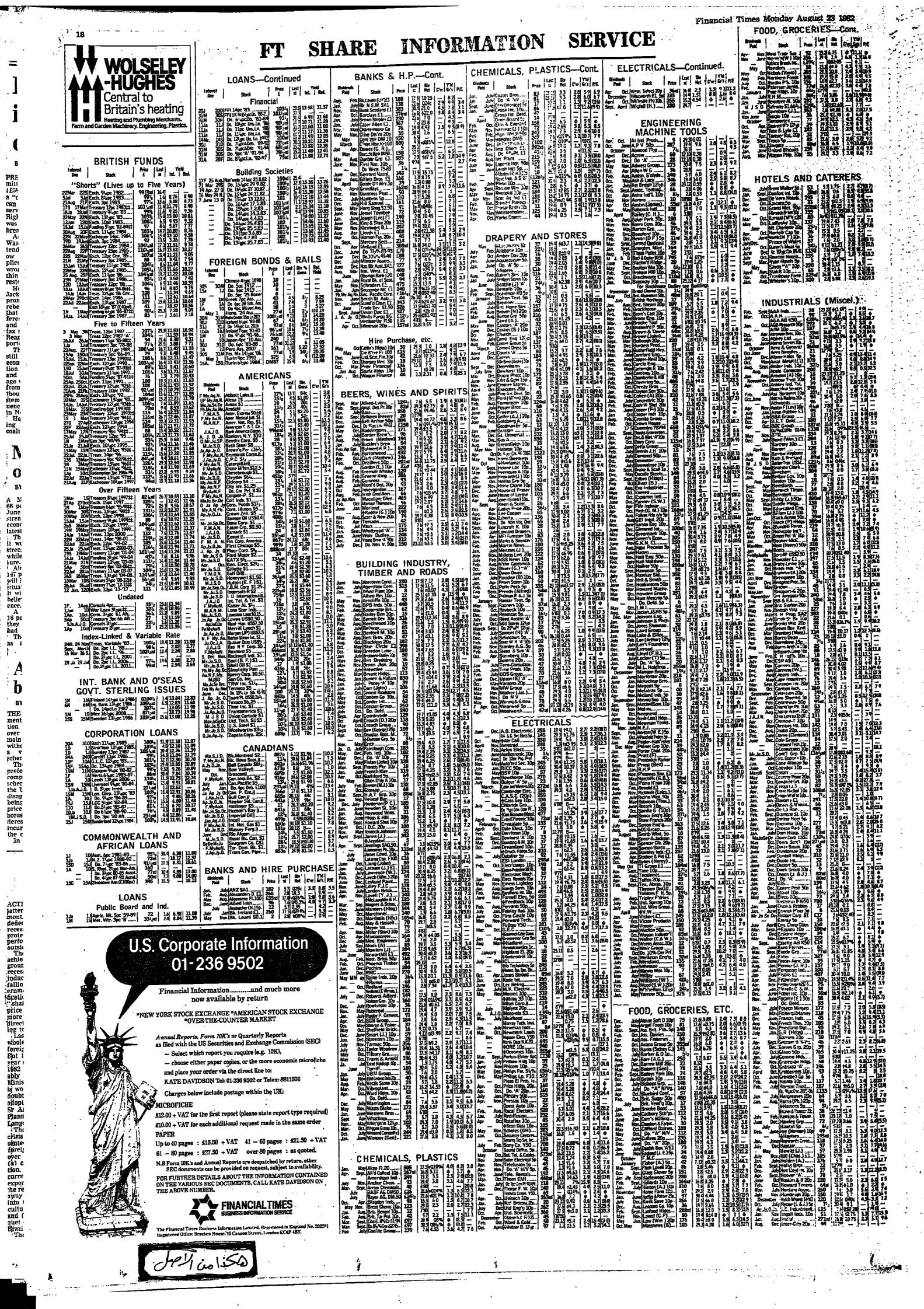
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Financial Times Monday August 23	1982	•	المتحمل	المكدامن	17
INSURANCES  Insurance Co. Ltd. (2)  1 St. Bear's Charchyrd, ECAP 40X, 01-248 9111  Property Fand. 228 25 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	調言: INSUKA		MANAGED FUNDS	P.O. Box 73, St. Heller, Jersey. 0534 73939 P.O. Granville Inv. 7st	set Fund Man. (Jersey) Ltd.  Box 194, St. Heller, Jersey. 053427431.  Stip, Find Int. 197,788 0,8344 10 10 10 10 10 10 10 10 10 10 10 10 10
1.3.5. Bear's Cherciford, ECAP 40X, 01.285 9111 Property Fund. 22,4 26,7 26 Early Fund. 22,8 55 9 Property Acc. 25,4 26,2 9 Pens, Mangrid Acc. 155,5 Pens, Mangrid Acc. 155,5 Pens, Mangrid Acc. 155,5 Pens, Mangrid Acc. 163,9 452,0 Pens, Mangrid Acc. 102,8 Fally Acc. 163,9 152,0 Pens, Mangrid Acc. 102,8 Pens, Mangrid Acc. 102,8 Pens, Early Int. 102,8 Pens, Early Int. 102,8 Pens, Early Int. 102,8 Pens, Fund. 103,9 Pens, Fund. Int. 103,1 Pens, Mangrid Acc. 113,0 Pens, Fund. Int. 103,1 Pens, Mangrid Acc. 113,0 Pens, Mang	Multi Gweth Auri 6 52.08762	NUIS (Managed Punds) Ltd.   34.6 s   1.5   3   3   3   3   3   3   3   3   3	Die Austrance List.   Bishopsgate Commodity Ser. List.   P.D. Bee 42, Dogsis. Jo. M.   0624-23	511 Prices at Aug 18. Next dealing Sept 2. Resc. 51 Hamsbre Pacific Fund Mignet. Ltd. 2110, Communit Centre, Horn Korn Far Eastern Aug 18IMS19.5 20.60 — PO B. Japan Fund Aug 20ISS 21 8.604-0.25 — mt. 1 Hambres Fd. Mignet. (C.1.) Ltd. North	5. Gresham Street, E/2V 7LH. 01-604-6177 Fd. Int. Aug 2. [514/5.22 - 530]
High brt. Ser. 4. 119.5 126.3 Greenth Prep Aug 3. 1103.7 Month Pers. Aug 11. 1120.3 M	0. 8 Equity Aug 19 27 5 29 5 1 20 7 1	Find narest   134,0   141,0     Crish   134,0     Crish   134,0     Person Massec   128,4   133,0     Person Massec   134,0	121   124   124   125	Capital Reserve Fel. F. F. F. P. 15 31 at	Inco Managers Ltd.  2x, 1549, Hmitn, Bermada. (809-29) 2-7979  100 Aug. 2
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100   100	139 1 1361 +01 - F	or Mich of Other Units and Guaranies Do. Isle of Main 131	41.12 +26 9.01 Steriles Managed Fci [117 79 123.99] ~ 45.2m 240 Dollar Magd. Fed 5109.73 114.46	Prices on Ass 11 Next dealing Aug 18. ## Only on	etore Jersy us. † E-subdivison. Nishle to daritable bodes.



Financial Times Monday August 23 1982 INDUSTRIALS—Continued LEISURE—Continued | PROPERTY -- Continued | INVESTMENT | INVES DIL AND GAS-Continued | Sect | Section HATCH AND SERVICE OF THE PROPERTY OF THE PROPE 38 7.7 41 52 25 107 58 48 43 5.9 17 92 81 36 5.9 65 24 9.1 63 - 66 0 0 121 40 38 7.7 41 52 26 1005 15 73 129 17 62 135 14 62 83 17 62 135 18 7.8 - -21 10 7 58 0 42 0 21 10 7 58 Nikko House, 17 Godliman Street, London, EC4 England Tel.: 248-9811 Telex: 884717 MINES--Continued Central African MOTORS, AIRCRAFT TRADES Motors and Cycles Australian ACM 20c
Argesy Gold NL 25c
Bond Corp.
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Carr Boyd 20c
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Haoma N.W. Commercial Vehicles Aug | E.R.F. (Hidgs.). 41 | 57 | 0.1 | - | 0.4 | - | May Plaxtons (GB) ... 146 | 2312 | 85 | 22 | 85 | 4.1 | Ct. | York Traller 10p ... 19 | 125 | 8 ... | - | - | - | Components Garages and Distributors 13 036c 11.1 0165c 7.6 070c 28.8 018c 15.2 015c 57 060c 30.4 0142c 9.11 045c 7.6 034c 28.8 40102c 29.3 5030c 153 1.73 1.0 3.7 May Nov. 1.1 2.7 1.1 2.9 2.8 1.95 1.0 3.8 2.6 2.5 1.0 4.1 7.7 0.4 2.0 1.0 3.0 May Nov. 1.1 3.0 1.0 3.6 2.5 1.0 4.1 7.0 2.0 1.0 5.0 1. Tins Amai Nigeria Io Nor. Ayer Hitam SM1 Geevor Govern Cons. Jan. Gogeng Cons. Aughtonistoring SM0 50 July 19 July Murray Western B. arch Neyt S.A. SUS1.

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The Nikko Securities Co., (Europe) Ltd.

# TUC faces a stormy Congress

BY JOHN LLOYD, LABOUR EDITOR

THE TUC will be faced with an historic decision at its Congress in Brighton in two weeks' time: whether to maintain a 20-year relationship with government through the National Economic Development Council, or sever it and return to an outsider role of agitation and protest.

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Those in favour of severance in the minority on the General Council-will see their arguments strengthened by the broad hint from Mr Norman Tebbit, Employment Secretary, during a television interview yesterday that he may end grant-aid to the TUC for educa-

The other major debate, on which there appears certain to be a card vote, will be on the structure of the General Council itself. A proposal from the TUC to replace the system of election by trade group with one which gives automatic representation to leaders of unions with more than 100,000 members, will be hotly debated and may fall, reversing a decision of last year's Congress,

The anti-NEDC alliance is, as the final agenda for Congress shows, a broad one-stretching from Left-led unions such as the Fire Brigades Union and the white collar engineering union Amalgamated Union of Engineering Workers - Tass, through the left-of-centre print union Sogat 82 to the right-led Iron and Steel Trade Confedera-

Support for continued participation comes from the Association of Scientific Technical and Managerial Staffs, in an amendment to Sogat 82's motion to pull out. ASTMS argues that continued involvement of the TUC in the NEDC and other tripartite bodies is "of substan- yesterday:

BY JOHN LLOYD, LABOUR SDITOR

Technical and Managerial Staffs.

union's research director.

Foam fears

hit sales of

insulation

SALES of a wide range of home insulation products have slumped and companies using urea-formaldehyde (UF) foam

cavity wall insulation are fac-

ing serious financial problems

following a television news re-

UF foam is the most widely uned material for cavity wall

insulation. The National Cavity Insulation Association

says that at least two companies

have ceased trading and many

others are seriously threatened

following the broadcast on ITN's News at Ten on July 5.

The report looked at allega-

vapour, if it escapes into the

atmosphere, can irritate the

The association rejects the allegations and says that if used properly the product

should not cause householders an discomfort. "Urea-formalde-hyde foam has been success-

fully used in this country for home insulation for the past 20 years," said an association

Companies using the foam

say that orders have dropped

by up to 75 per cent. Many com-

panies had to lay off installers.

director of Warmawall, which

installs a wide range of insula-

tion products, said that orders

the past two months by about

45 per cent across a whole

Mr Ken Johnson, managing

eyes and respiratory tracts.

that formaldehyde

By Andrew Taylor

health hazards.

and Mr Barrie Sherman, the relations.

series of books on how electronic arguing technology will cut the demand affiliated

elevision studio. the decision by Champel 4.
The partnership is that of Mr which begins broadcasting on

Clive Jenkins, general secretary November 2, to run a number of the Association of Scientific, of programme series on indus-

The two have produced a get the industrial relations slot.

for labour and create large-scale some 11m workers, made it the

unemployment and enforced most representative body.
leisure. Channel 4, which began dis-

### Tebbit hints at grant cut

MR NORMAN TEBBIT, the Employment Secretary, yesterday said he was considering ending government payments to the TUC for education of union officials.

Mr Tebbit, answering questions on ITV's Face the Press, said the grant aid had been cut from £1.8m last year to £1.6m this year and was under further review. There would come a point, he said, when it would seem odd that unions should not take state funds for ballots because the money was tainted, but would continue to take money for education.

"It doesn't seem a terribly logical position and I'm not

sure I would want to leave them in that difficult and position illogical definitely." Mr Tebbit said the Green

Paper on trade union reform, to be published later this year, would propose the com-pulsory election by secret ballot of "governing bodies" of unions. This would be one of a number of options to be debated before legislation was brought forward.

He said the timetable for legislation was difficult to see. The legislative programme for next session did not. "absolutely preclude" bringing in a Bill, but was "pretty tight."

The issue of General Council structure, which has been an facts." exceptionally contentious one in the past year because of the debate include: effect on the Council's political composition, will remain an open one up to the eve of

The left-led National Union of Public Employees, and ASTMS, have been under great pressure from other left-led unions to switch their votes to oppose the "automaticity" principle, which both supported last year. But in neither case has the executive or its delegation taken a decision.

Mr Tom Sawyer, Nupe's deputy general secretary, said

try, including one on industrial

The TUC thought it should

that its 100-plus unions organising

general"-a position which is the major issues and we are still expected to narrowly carry still open-minded about them.
We'll take a decision nearer Congress in the light of all the

Other issues likely to cause

· A motion from the National Graphical Association which seeks to prohibit the use of the TUC's fighting fund in meeting unions' legal fees in cases arising from the employment legislation. This would reverse a decision taken at the TUC special conference earlier this

yesterday: "We're very confrom the Iron and Steel Trades' life to be lost in scious of the importance of both Confederation which affirms military campaign."

clear that there is no institu-tional right of access to Channel 4. Ideas are accepted

or rejected on the basis of the

several

between Channel 4 executives and TUC officials, the TUC took

the point to the extent of em-

ploying a film production com-

pany, Black Rod, to develop

idea's worth.'

a programme idea.

After

However, the partnership is cussions with the TUC early given a contract to another still to make up his mind.

support for a "national economic assessment" embracing earnings and incomes carried out by the TUC and a future Labour Government. If this motion and amendment cannot find a compromise then Congress could face a further major debate on its attitude to incomes policy and its role in the planning process.

 The role of the press in reporting union affairs could increasingly controversial if Congress carries an ASTMS amendment to a motion on press freedom tabled by the National Association of Theatrical, Television and Kine Employees. The amendment calls on the General Council to establish criteria for monitoring journalists' reporting on union activities," calls for it to insist on the right of reply and to "take steps to ensure that hitter and mercenary journalists cannot avail themselves of union press facilities."

If passed-and it may disappear in the compositing pro-cess-the definition of "bitter and mercenary" is likely to slowed. cause TUC staff some problems.

The Falklands conflict may be extended into the Congress from the Electrical and Plumbdeep appreciation to the British forces for their great victory in recovering the Falklands from Fascist aggression."

The amendment is to a motion from the Left-led furniture • A motion from the construc-tion section of the AUEW pro-critices the Falklands task force hibiting pay restraint discus- by saying: "It is immoral and sions with any government is indefensible, from a humanithe subject of an amendment tarian point of view, for a single

TV contract threatens union partnership THE FUTURE of one of the threatened by a row which, this year, demurred. Ms Liz company, Group Four, to make Labour movement's most famous ironically, concerns access to a literary partnerships may be in doubt because of a storm in a The root of the trouble is the weekend: "We made it participant in the series, is Mr

Mr Sherman's decision was a

disturbed by his decision to

participate and said he was not

Mr Sherman, presently re-

to continue with it.

Channel 4, however, has covering from an illness, has

permanently.

depended on an improvement in the world economy and in the competitiveness of British

vesterday for Government measures to restore confidence to industry. Mr John Risk, chairman of the Association of British Chambers of Commerce. wrote to Mr Leon Brittan. Chief Secretary to the Treasury, call-

# Lay-offs at BSC and Dunlop

BY IAN RODGER

of a fall in orders and a buildup of stocks.

At the same time Dunlop is port on allegations of possible laying-off nearly 3,000 workers at its Fort Dunlop tyre factory on the outskirts of Birmingham for the week because of BL's plan announced on Friday to suspend Metro and Mini production next month for two weeks in addition to its oneweek holiday shutdown.

A spokesman for British Steel's timplate division said further production pauses would probably be required during the rest of the financial year at the Ebbw Vale, Trostre and Velindre works. This was partly because of a lack of demand from the UK canning industry

TWO MORE big employers have and partly because of a fresh uk last month was 21.3 per announced lay-offs which rise in imports.

together will affect 8,500 Tinplate sales were among largely because of these produc-Timplate sales were among the worst hit by the 13-week

ince British Steel Corporation tinplate mills in Wales Imports rose to 40 per cent of employing 5,500 people are to be closed for the whole of the Bank Holiday week harman as makers such as March Box lost confidence in British Steel. But last year the corporation pushed the importers' share down to about 20 per cent.

Now imports of tinplate and other steel products are on the increase again, attracted by the recovery of prices in the UK market. The corporation said its tinplate mills were running at about 10 per cent below their target output of 17,000 tonnes per week and stocks were still

A decline in orders for most British Steel products has al-ready caused production pauses at works in Yorkshire, Teesside and Scotland this summer. These have usually been attached to holiday shutdowns. Total steel production in the

tion pauses and the bringing forward of holiday shutdowns from August to July to reduce Meanwhile Dunlop said its

planned stoppage was directly connected with the BL decision to suspend Metro and Mini production, which would cause a sudden fall-off in demand for tyres.

Employees at both Dunlop and British Steel will receive guaranteed payments during the week off.

Other component manufac-turers are studying the implications of BL's shutdown decision. Lucas, the electrical group, said last night: "We shall be assessing the situation and if necessary consulting the trade unions."

The management of Ferodo, which makes brake and clutch linings, is to examine the situa-

# British resorts fight for tourists

BRITAIN'S seaside resorts, many suffering their worst postwar holiday season, are to make more vigorous attempts to sell themselves through high street information centres,

at his company had fallen in house holidays through travel Many more are expected to way they book foreign package

range of products. More details, Page 6

participate in the English tours. Tourist Board's Instant Booking scheme, under which nocommission bookings can be made at the counters of town by the English Tourist Board travel agents and inland tourist tourist offices throughout Eng- and the British Resorts Asso-

land. project offering hotel and guest brochure available from travel agents. People will be able depend on fairly full capacity to make their bookings in the during the peak summer season,

deposits will be the travel agents' commission. Both schemes are supported ciation but the use of travel Next year about 12 resorts— In the Hollday UK scheme, agents, with the commission and more may join them before the resorts and participating involved, is still disliked and brochures are printed—will hotels and guest houses will rejected by many hotel and collaborate in a Holiday UK feature in a multi-resort guest house operators.

They believe they can still

# Schmidt warns of international trade war

BY JONATHAN CARR IN BONN

CHANCELLOR Helmut Schmidt of West Germany has warned that an international trade war could break out, destroying jobs and returning the western world to conditions similar to those of the

As examples of the danger, Herr Schmidt mentioned the differences between the U.S. and the European Community over steel, and the transatiantic discord over the EuropeanSoviet gas pipeline deal.

In a radio interview this weekend, the Chancellor said: "When we start to subject the free exchange of goods and services throughout the world to political conditions, then we contribute to the cut in jobs even though this is not our aim.

"That is wanton and irresponsible and it reminds me of the years 1931 and 1932." Herr Schmidt said, in

what are some of his strongest public comments to date on the trade issue. The Chancellor displayed

some impatience with his interviewer, who was keen to know Herr Schmidt's views on the economic outlook for West Germany and how the Government planned to deal with gaps already appearing in the federal budget for 1983.

Herr Schmidt agreed that the domestic economic growth outlook seemed less rosy than

it had done a couple of months ago, but that this was a problem which Germany shared with many other countries.

He stressed that the plight of the whole world economy --including that of the Communist states—filled him with "deep concern." This concern had not been affected by what he called the "extited bab-bling" in West Germany this summer about domestic ilis.

### Prior's plea over jobless figures rejected

AN APPEAL by Mr James Prior. Northern Ireland Secretary, for a change in govern-ment policy to reduce "intolerunemployment, was rejected vesterday by Mr Norman Tebbit. Employment Secretary. too long.

But he added: "I have to by any means of engineering a sharp and satisfactory fall in unemployment which would not be very quickly reversed."

Mr Tebbit hinted that figures

plateau, near the top." he said. day, however, a UK clearing
"The rate of increase has bank with plenty of interna-The rate of increase has

The Employment Secretary was speaking on the Tyne Tees Television setworked programme. Face the Press. This is the latest exchange in the ing Trades Union which calls on | battle between the Tory " wets." Congress to place on record its | who want to see some reflation, and those who want to adhere the Government's strict! monetarist policies.

Mr Tebbit said there had been January, but it had faltered. "It has been a very faltering and hesitant recovery not least hecause of what has happened

in the U.S. "But the levels of economic activity we see now are certainly not on the way down. We are certainly not going deeper into recession."

Mr Tebbit saw no reason for unemployment to stay at its present level. He was not a member of the "gloom and doom brigade" who believed there was going to be a large number of people unemployed

He stood by the speech he made at Glamis Castle when he vowed to prove the pessimists

A decrease in unemployment contentious one with his general secretary. Mr Jenkins. a leading member of the TUC general council, told his research director that he was industry.

There was more pressure ing for further cuts in interest rates and "prudent fiscal action" to reduce industrial

The letter was intended as a rebuke, although it was not spelled out, to Mr John Wakeham, Minister of State at the Treasury who has special responsibility for the private sector.

The ABCC was angered by Mr Wakeham's criticism of the CBI's recent gloomy forecasts about industrial confidence and by his assertion that industry was largely to blame because of its lack of competiveness. Voters with a Calvinist view.

### Weather UK TODAY

COOL, showers, clearing from

Cent and S England, S Wales Sunny intervals, showers, heavy in E, drying out in W. Max 18C (64F). Rest of England and Wales, Scotland, N Ireland

Cloudy, rain outbreaks, then brighter with showers, followed by sunny periods in W. Max 17C (63F). Outlook: Dry, then changeable

WORLDWIDE

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# THE LEX COLUMN Running risks

# in Mexico

the time which it has taken to stick of bank solvency. Mr Tebhit admitted unem-, dawn on the international bankployment was bad and that it ing community. Only a fortnight would put a strain on the social ago, the Mexican Government fabric of society if it went on was looking forward to completion of a \$150m short-term Eurocredit on terms which top emphasise there is no prospect | corporate borrowers would consider highly acceptable.

Mexico's debt servicing costs have been catching up with its oil revenues for the whole of the Mr Tebbit hinted that ngures to be announced on Thursday that only the devaluation of the peso had averted a default on peso had averted a default on the following. past year and early this month the country's President admitted tional exposure indicated that it had not seen fit to make any provision against sovereign risk in its interim figures.

In technical terms, the sangiroid with which bankers greeted the collapse of the Mexican economy is perhaps understandable. Unlike AEG-Telefunken, Mexico cannot cali in the receivers and wholesale default on public sector debt of an upturn in the economy in about \$60bn is in any case
January, but it had faltered. unthinkable. According to some estimates, it would wipe out more than a third of the capital base of U.S. money-centre banks

> With confidence in the banking system already strained by a rash of private sector failures. it may be wise for bankers to keep their heads down when a Euromarket flag-ship runs aground. As it was, rumours about Mexican exposure were enough to take Manufacturers Hanover support the price of its own bond issues on Friday.

But there is a distinction between retaining confidence in the banking system and shovelling the problems under the carpet. Under the moratorium formula proposed by Mexico, repayments of principal would he suspended but interest would continue to be paid. In this way, Mexican debt need not be categorised as a non-performing

This principle may already have applied in the most recent agreement on Polish deot. Interest due is being capitalised into new debt which, technically at least, could allow patently doubtful loans to retain their performing status. At present, bank provisions

against Mexican debt are probably negligible. Given the size of the country's commitments and the gravity of its debt servicing problems, this is a little worrying. And, in the U.S. at least, there is increasing evidence that the balance sheet

assets to total loans increased at all but one U.S. money centre bank last year, but the rises were generally modest. In every case, the ratio was markedly lower than at the end of 1977. Continental Illinois, which reported a net loss in the second quarter, had a ratio roughly half the 1977 figure.

Stock markets, naturally enough, have made their own judgement. Prices of U.S. bank shares, as measured by the Keefe, Bruyette and Woods. Index, have fallen 19 per cent since the beginning of this year and are now trading almost at record discounts relative to the market. In the UK, the FT-A Banks Index has underperformed the FT-A All Share by 17 per cent since the end of December and now yields almost 60 per cent more than the market average.

In the inter-bank markets several leading names have been obliged to pay a risk premium for short-term funds and presumably no one knows more about creditworthiness than a bank's own peers.

An alarming feature of the asset which, for outside best to kep the confidence of present Mexican debt crisis is observers, provides a vital yard-depositors and shareholders in the banking system. It is also understandable that, at a time when banks find it impo to obtain new equity on reshie terms, their espital ratios should come under pressure.

Equalty, however, banks, can hope to defuse the cantequences of a serious failure only if investors and depositors believe that published information provides an accurate picture of state of play, and that the be themselves are about to dangers.

### Redland

evidence that the balance sheet positions reported by banks do not fully reflect the true status of their loans.

The ratio of non-performing assets to total loans increased holders' funds to 29 per cent. while earnings per share edge. a mere 2 per cent lower. On a current cost basis, indeed, earnings rise from 7.40 to 8.30.

Central to the merger scithmetic has been Rediand's low tax charge and its unrecover-able ACT "problem," which has been transformed into an oppor tunity in a way that may cause the ears of ambitious finance directors to prick up. Cawoods has held off a natural full 52 per cent tax charge by going into leasing in a big way and each year has had to expand its leasing book to roll the tax deferral ever forward. But Redland's marginal tax rate mere 22 per cent, so the leasing book can now be run off and real cash realised—over the next three years for an extremely modest tax penalty.

Cawoods' venture into leasing thereby becomes far more profitable than the original sums indicated, while it is also safely off the leasing treadmill. The leased assets of £23m should produce net cash of \$18m or so in Redland's hands, reducing It is obviously crucial that net debt to 20 per cent of sharecommercial banks and regulatory agencies should do their Lombard North Central?

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